RECLAMATION

Managing Water in the West

Draft Coachella Canal Area Resource Management Plan/ Environmental Assessment

Riverside County, California

U.S. Department of the Interior
Bureau of Reclamation
Lower Colorado Region
Yuma Area Office
Yuma, Arizona

April 2006

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Prepared for:

U.S. Department of the Interior
Bureau of Reclamation
Lower Colorado Region
Yuma Area Office
Yuma, Arizona

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Coachella Canal Area
Resource Management Plan/
Environmental Assessment
Acronyms and Abbreviations

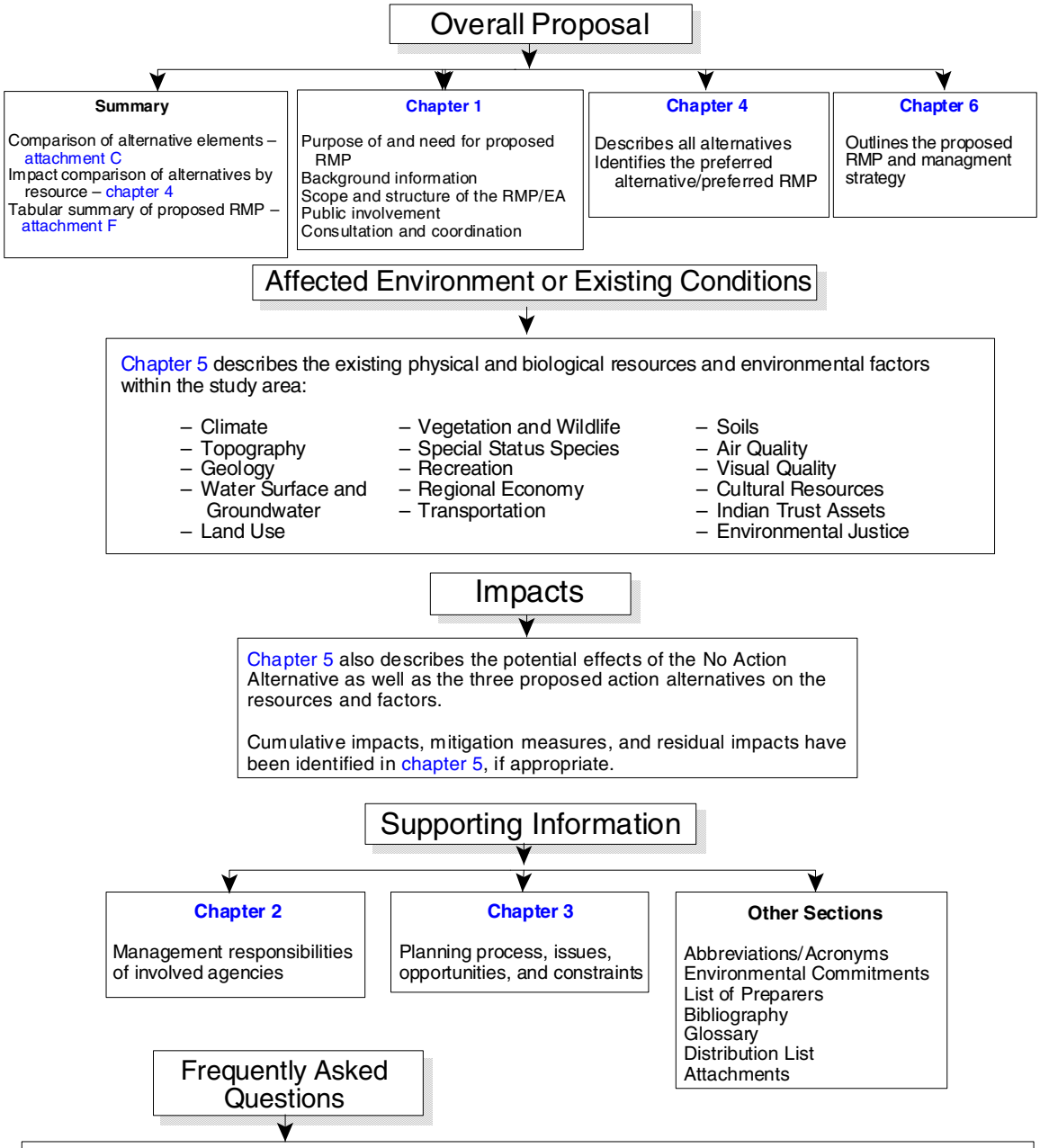
ABC/M	Activity-Based Costing/Management
ACEC	Areas of Critical Environmental Concern
APE	Area of Potential Effect
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
Coachella Canal Area	lands associated with the Coachella Canal
CCA	Comprehensive Condition Assessments
CCAA	California Clean Air Act
CDCA	California Desert Conservation Area (relates to Plan Amendment)
CDF	California Department of Finance
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMP	Congestion Management Program
CO	carbon monoxide
Council	Advisory Council on Historic Preservation
CRHP	California Register of Historic Places
CSP	Commercial Services Plan
CVMSHCP/NCCP	*Draft Coachella Valley Multiple Species Habitat Conservation Plan/Natural Community Conservation Plan*
CVRPD	Coachella Valley Recreation and Park District
CVSIP	Coachella Valley State Implementation Plan
CVWD	Coachella Valley Water District
EIC	Eastern Information Center
ESA	Endangered Species Act of 1973, as amended
FCI	Facility Condition Index
FONSI	finding of no significant impact
GIS	geographic information system
GPRA	Government Performance and Results Act of 1993
GSA	General Services Administration
Interior	Department of the Interior
MA	management areas
MEA	Master Environmental Assessment
mph	miles per hour
msl	mean sea level
MWD	Metropolitan Water District
NAFTA	North American Free Trade Agreement
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration

Acronyms and Abbreviations (continued)

NRCS	Natural Resources Conservation Service
NWR	National Wildlife Refuge
O_3	ozone
OHV	off highway vehicle
OIG	Office of Inspector General
OMB	Office of Management and Budget
O&M	operation and maintenance
Pb	lead
P.L.	Public Law
Project	Boulder Canyon Project
Reclamation	Bureau of Reclamation
Register	*National Register of Historic Places*
RMP/EA	resource management plan and environmental assessment
RO&M	review of operation and maintenance
RTP	Regional Transportation Plan
R&B	Rehabilitation and Betterment
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
Service	U.S. Fish and Wildlife Service
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SSAB	Salton Sea Air Basin
Stat.	Statute
SWPPP	storm water pollution prevention plan
USGS	United State Geological Survey
U.S.C.	United States Code
USGS	United States Geological Survey
°F	Fahrenheit

How to Read This Resource Management Plan/ Environmental Assessment

This resource management plan (RMP)/environmental assessment (EA) is an integrated planning and National Environmental Policy Act compliance document. The schematic below will help you locate the information you are most interested in.



Frequently Asked Questions

Who do I contact for more information? See the transmittal letter sent with this document.

What does an acronym (like NEPA) mean? See the list of abbreviations and acronyms before the "Contents."

Where can I find a certain topic? Use the "Contents" at the beginning of the document.

Why doesn't this look like a typical environmental compliance document? Because it is an integrated document that has both planning chapters and environmental compliance chapters contained under the same cover.

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Chapter 1
Purpose of and Need for Action

Introduction

The Bureau of Reclamation (Reclamation) prepared this draft resource management plan and environmental assessment (RMP/EA) for lands associated with the Coachella Canal (Coachella Canal Area). (See **map 1.1, Coachella Canal Area Location**.)

An RMP includes much of the same information and analyses that the National Environmental Policy Act (NEPA) requires in an environmental compliance document; therefore, this RMP/EA is intended to meet the environmental compliance requirements of NEPA, as well the planning information requirements of an RMP. Because the alternatives developed for the RMP portion of the document are general in nature, the NEPA portion of the document (or EA portion) is programmatic in nature. Site-specific NEPA compliance will be required before any of the ground-disturbing management actions of the RMP can be implemented.

Authority

Title 28 of Public Law (P.L.) 102-575, section 2805 (106 Statute [Stat.] 4690, Reclamation Recreation Management Act of October 30, 1992), provides Reclamation with authority to prepare resource management plans.

Proposed Federal Action

Preparation and implementation of a resource management plan are Federal actions. The RMP is intended to protect and direct the management of resources along the Coachella Canal to maximize overall public and resource benefits for the next 10 years. NEPA requires Federal agencies to consider the potential impacts of a Federal action on the environment before implementing the proposed action.

Purpose of and Need for Federal Action

The *purpose* of the RMP is to establish a 10-year plan detailing the management framework for the conservation, protection, enhancement, development, and use of the natural and cultural resources along the Coachella Canal while protecting the authorized Reclamation project purposes as detailed in the Boulder Canyon Project (Project) Act of December 21, 1928 (45 Stat. 1057).

The RMP is *needed* to do the following:

- Provide decisionmakers with consistent direction and guidance to successfully manage the natural and cultural resources and to protect Project facilities along the Coachella Canal.
- Ensure that management of the natural and cultural resources is compatible with authorized Reclamation and Coachella Valley Water District (CVWD) project purposes.
- Provide a framework to resolve land use issues and concerns related to the existing and future use of lands associated with the Coachella Canal as a result of the population growth in the Coachella Valley and surrounding area.
- Address the increasing demand for public use of the resources along the Coachella Canal while protecting and enhancing the natural and cultural resources.
- Update the February 1993 Coachella Canal Area RMP and make appropriate changes that may be necessary due to changes in the social, physical, environmental, and economic conditions of the area.

Study Objectives

Overall objectives of the RMP include the following:

- Explore ways to enhance and protect the natural and cultural resources.
- Identify and determine uses of Reclamation lands that are compatible and consistent with Reclamation's primary project purposes and CVWD's operation, maintenance, and replacement responsibilities associated with the Coachella Canal.
- Identify long-term programs that address public health and safety, fish and wildlife, recreation, and other resources.
- Identify financially feasible opportunities or partnerships to assist in managing resources.

- Document specific management actions that will allow Reclamation to operate and maintain lands associated with the Coachella Canal, while protecting authorized Reclamation project purposes as detailed in the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057).
- Protect and enhance Reclamation's existing partnerships with the Coachella Valley Water District, Riverside County, and Coachella Valley Recreation and Park District (CVRPD).
- Protect existing right-of-use authorizations.

The overall objectives for completing an RMP for the Coachella Canal Area are consistent with the mission goals identified in Reclamation's 2000-2005 Strategic Plan. Strategic Plan goals include the following:

- Manage, develop, and protect water and related resources to help meet the needs of current and future generations.
- Operate, maintain, and rehabilitate facilities safely, reliably, and efficiently to provide benefits.
- Advance Reclamation's organizational effectiveness.

Interior's seven strategies for managing land resources are as follows:

- Responsibly manage Reclamation lands, stressing a balance of resource development, public recreation, and protection of natural and cultural resources, environmental laws, and Reclamation project purposes.
- Make Reclamation lands and facilities accessible for persons with disabilities.
- Complete the inventory and evaluation of cultural resources on Reclamation lands and develop a program to curate those resources through partnerships with museums, universities, and other entities.
- Ensure that Reclamation lands are free of illegal drugs.
- Identify and resolve cases of unauthorized and disputed uses.
- Continue the review of Reclamation land withdrawals according to the Federal Land Policy and Management Act of 1976.
- Complete land use agreements with those interested in using real property under Reclamation's jurisdiction ensuring that a fair cost recovery is received.

Chapter 6 of this document contains specific Reclamation goals and accompanying objectives for the study area. These goals and objectives were formulated as a result of (1) public involvement, (2) agency consultation and coordination, and (3) Reclamation review of programs and policies. The goals and objectives are consistent with the provisions of existing laws and regulations.

Scope and Structure of Document

This RMP/EA provides a conceptual management framework to conserve, protect, enhance, develop, and use the natural and cultural resources within the study area. Because the RMP establishes only a conceptual framework for managing resources, the EA portions of this document focus on broad impacts associated with the alternatives. As stated previously, site-specific NEPA compliance will be completed, and all environmental and cultural clearances will be obtained before any ground-disturbing activities begin.

The following paragraphs briefly describe, by chapter, the structure of this RMP/EA.

Chapter 1 provides an introduction to and overview and history of the study area and sets forth the purpose and need for an RMP/EA, authorities, overall objectives, public involvement, consultation and coordination, and related activities occurring within and adjacent to the study area.

Chapter 2 establishes the management framework by describing the existing policies and programs affecting or influencing the use of Reclamation land and water and describes the responsibilities other entities may have in managing lands within the study area. Chapter 2 also describes the responsibilities other entities have in managing lands adjacent to the study area.

Chapter 3 summarizes the key factors that influenced RMP/EA development by identifying the planning issues, opportunities, and constraints within the study area.

Chapter 4 describes the four alternatives, including the preferred alternative and the No Action Alternative, formulated in response to the issues identified by the public, CVWD, and Reclamation.

Chapter 5 describes the affected environment of the study area and discusses the potential effects of the alternatives on resources and environmental factors (environmental consequences).

Chapter 6 describes in detail the RMP, the preferred alternative selected by Reclamation. The chapter details the management goals and objectives and the management strategies and directives for the study area for the next 10 years.

Study Area Location

The Coachella Valley encompasses approximately 200,000 acres under various ownerships. The portion of the Coachella Canal Area covered by this RMP is within Riverside County, California, and consists of about 30 miles of the canal and approximately 3,990 acres of Reclamation lands. The study area is located just north of the Salton Sea and includes areas near the communities of Mecca, Thermal, Coachella, and Indio on the east, La Quinta on the west, and ends at Lake Cahuilla, the terminal reservoir of the Coachella Canal. Approximately 35,000 acres of other Federal lands are under the jurisdiction of the Bureau of Land Management (BLM) and the Bureau of Indian Affairs (BIA). The State of California administers about 5,000 acres. County, city, and private lands make up the remaining 156,000 acres. (**See map 1.2, Coachella Canal Area Study Area and Parcels**.)

Project History

The All-American Canal System was authorized under the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057). The system included the Imperial Diversion Dam and Desilting Works, the 80-mile All-American Canal, the 123-mile Coachella Canal, and associated structures.

Construction of the All-American Canal began in 1934, following the construction of Hoover Dam. The construction of Imperial Dam and Desilting Works began in January 1936 and was completed in July 1938, with delivery of the first irrigation water in 1940. The All-American Canal was built from August 1938 to June 1948. Construction was interrupted by World War II, and work stopped from 1942 to 1944. Construction of the Coachella distribution system was initiated in 1948 and completed in 1954. After initial construction, deficiencies were identified in the original delivery system. To correct these deficiencies, CVWD undertook a Rehabilitation and Betterment (R&B) Program. The R&B Program was authorized under the provisions of the Rehabilitation and Betterment Act of October 7, 1949 (63 Stat. 74), as amended March 3, 1950 (64 Stat. 11). The R&B work began in January 1964 and was essentially complete in 1977. The primary features of the R&B Program were the construction of Lake Cahuilla, dikes 2 and 4, and Avenue 64 Evacuation Channel, which extends about 6 miles to the Whitewater Storm Channel.

Almost all study area lands are currently operated and managed either by CVWD, Riverside County, or CVRPD through contractual agreements with Reclamation.

All of the Coachella Canal, the associated protective works, and water delivery systems within the area covered by this RMP are transferred works—transferred by Reclamation to CVWD for care, operation, maintenance, and replacement. **By virtue of Reclamation's authorized purposes, CVWD's normal operation and**

management procedures and requirements are paramount to any other uses of these lands and, as such, will not be subject to modification by this plan. Any uses proposed and/or alternatives considered will, by necessity, be considered in terms of their compatibility with CVWD's operations and maintenance. There is no termination date to this operation and management agreement, and it can be expected to run in perpetuity. (See **photograph 1.1.)**

The existing agreement with Riverside County is for the operation of a county park at Lake Cahuilla (the terminal regulating reservoir of the Coachella Canal), a facility also operated by CVWD. CVWD's normal operation of Lake Cahuilla requires a drawdown of the water level in the reservoir during the weekdays and a filling of the reservoir on weekends. The water level, however, may be fluctuated at any time by CVWD or Reclamation, and they reserve the right to vary the water levels to whatever extent deemed necessary or desirable for Project

Photograph 1.1 – Coachella Canal, east of Thermal.

operations. Water from Lake Cahuilla is removed by pipelines and delivered to farm lands along the western side of Coachella Valley. The current contract between Reclamation and Riverside County expires on January 10, 2021. (See **photograph 1.2**.)

Photograph 1.2 – Lake Cahuilla is the terminal reservoir of the Coachella Canal.

The existing agreement with CVRPD is to use Reclamation lands for recreation development. CVRPD manages three separate areas on Coachella Canal Area lands for recreation. The agreement expires April 23, 2026.

The existing agreements with Riverside County and CVRPD or similar types of management or right-of-use agreements are subordinate to Project purposes and needs of Reclamation and CVWD.

Through normal operations, numerous right-of-use agreements between Reclamation and power companies, irrigation districts, and individuals have also been entered into over the years. Agreements currently exist for all of the following types of uses: bridges, access roads, crossing agreements, fences, power and transmission lines, telephone lines, fiber optic cables, water pipelines, and gas pipelines. Pre-existing authorized land uses will continue to be honored and protected, as long as they are consistent with Project needs.

Public Involvement

Throughout the development of this RMP/EA, Reclamation made a concerted effort to involve interested parties, including agencies, special interest groups, and individuals in planning for the environmental, land, recreation, and wildlife resources within the Coachella Canal Area.

In May 2004, Reclamation met with the following Federal, State, and local entities to provide information and gather input about the proposed RMP:

- Coachella Valley Water District, Coachella
- Bureau of Land Management, North Palm Springs
- California Department of Fish and Game, Bermuda Dunes
- City of Coachella
- City of Indio
- City of La Quinta
- Coachella Valley Recreation and Park District, Indio
- Riverside County
- The Keith Companies, Palm Desert

Additionally, Reclamation met with the superintendent and staff of BIA's Southern California Agency in Riverside on May 6, 2005.

To initiate the public scoping process for this study, Reclamation staff conducted open houses February 1, 2005, in Coachella; February 2, 2005, in Indio; and February 3, 2005, in La Quinta. Reclamation mailed notices to individuals; organizations; local county, State, and Federal agencies; and tribes in the local area describing the study, announcing the open houses, and requesting written comments. Reclamation also sent a press release announcing the open houses to local media. At each open house, Reclamation provided pertinent information to the public and solicited public issues and concerns about the existing and future management of the Coachella Canal Area. Several maps were displayed, and numerous handouts were available. A question and answer session followed a formal presentation by Reclamation staff. Before and after the formal session, Reclamation staff members were available to discuss the study with open house attendees. Approximately 25 individuals attended the open houses. Reclamation received one comment board[1] response during the open houses and five written comments following them.

Using public input, Reclamation formulated four preliminary alternatives for managing resources in the Coachella Canal Area. In April 2005, Reclamation mailed descriptions of these alternatives and how they were developed to those on

[1] At the open houses, Reclamation provided comment boards identifying resources and environmental factors for attendees to write comments on.

the mailing list and invited written comments. The public also was invited to attend open houses to receive additional information about the alternatives. In addition, a press release announcing the open houses was sent to local media, and paid display advertisements for the open houses were published in two local newspapers with widespread distribution, the *Desert Sun* and the *Press Enterprise*. Five people attended the May 23, 2005, open house in Coachella; nine attended the May 24 open house in Indio; and eight attended the May 25 open house in La Quinta. At each open house, information about the alternatives was displayed. Reclamation staff also discussed the alternatives and responded to individual questions before and after a formal presentation and question and answer session. Following the open houses, Reclamation received 10 written comments which were considered in preparing this draft RMP/EA.

A bilingual contact person was available by phone before the February and May open houses. A bilingual speaker also was available at each of the open houses. A few attendees informally used his services at several of the open houses.

During the 45-day review and comment period for this draft RMP/EA, Reclamation again will provide public participation opportunities in the local area. Bilingual and accessibility accommodations will be available. Notice will be provided to those receiving the draft RMP/EA; a press release will be issued, and paid display advertisements will be published in local newspapers. The draft RMP/EA will be available for public review in local libraries, Reclamation offices, and at <www.usbr.gov/lc/yuma>. In addition, paper and CD-ROM copies will be available upon request.

Following the close of the public review and comment period, Reclamation will consider all written comments and prepare the final RMP and the final NEPA compliance action on the EA, which is expected to be a finding of no significant impact (FONSI). Reclamation anticipates these documents will be available and distributed in the latter part of 2006.

Agency Consultation and Coordination

Reclamation conducted the following agency consultation and coordination in preparing this document.

- National Historic Preservation Act of 1966, as amended
- Endangered Species Act of 1973, as amended (ESA)
- Indian Trust Assets

National Historic Preservation Act of 1966, as Amended

Reclamation has initiated preliminary consultation with the California State Historic Preservation Officer (SHPO), in compliance with section 106 of the

National Historic Preservation Act of 1966, as amended. A listing of historical and archeological sites, pertinent references, and survey abstracts and/or reports have been obtained from the California Historic Resource Information System's Eastern Information Center (EIC) at the University of California, Riverside. In compliance with the American Indian Religious Freedom Act, the following Cahuilla and Luiseño tribal groups were sent letters of consultation regarding cultural resources, traditional cultural properties, and sacred sites within the study area (**attachment A**).

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Indian Reservation
- Cahuilla Band of Mission Indians
- Morongo Band of Mission Indians
- Pechanga Band of Mission Indians
- Ramona Band of Mission Indians
- Santa Rosa Band of Mission Indians
- Soboba Band of Luiseño Indians
- Torrez-Martinez Indian Reservation
- Twenty-Nine Palms Band of Mission Indians

Only one tribe, the Agua Caliente Band of Cahuilla Indians, responded to the letter (**attachment A**). A representative from the Tribal Historic Preservation Office confirmed that there are no reservation lands within the Area of Potential Effect (APE). The Tribal Historic Preservation Office also noted that while the Area of Potential Effect is not within its tribal traditional use area, it is near enough that the tribe is interested in any cultural resource reports generated from this study for inclusion in their cultural register.

Additional consultations with the California SHPO and American Indian tribal groups will be conducted for each action-specific development.

Endangered Species Act of 1973, as Amended (ESA)

On January 27, 2005, Reclamation sent a memorandum to the U.S. Fish and Wildlife Service (Service) requesting a list of threatened and endangered species for the study area (**attachment A**). On May 18, 2005, the Service provided a list of candidate, proposed, threatened, or endangered species for the Coachella Canal Area (**attachment A**). The draft RMP/EA is being provided to the Service for review and comment.

Indian Trust Assets

Reclamation provided BIA and area tribes information about this study, including notice of scoping and associated public meetings and the draft alternatives and associated public meetings. In addition, Reclamation contacted BIA and area tribes about Indian trust assets within the study area. In response, the Soboba Band of Luiseño Indians advised Reclamation the area covered by this RMP/EA is outside the Soboba Reservation territory as well as outside the tribal traditional use area (**attachment A**). However, because of the closeness of this proposed action to its Traditional Use Area, the tribe requested copies of cultural resource documents and reports and will be provided copies of this draft RMP/EA. No other potential trust assets in the Coachella Canal Area have been identified.

This draft RMP/EA is being provided to BIA and area tribes for review and comment. If, during this review period, Reclamation is notified of any trust assets affected or potentially affected by actions identified in the draft RMP/EA, the information will be included and analyzed in the final RMP/EA.

During implementation of the RMP, Reclamation will be in contact with BIA and local tribes. Should trust assets be identified, potential impacts will be identified and analyzed; and action will be taken to avoid adverse impacts. If adverse impacts cannot be avoided, mitigation will be implemented.

Other Related Activities

This section describes other related activities occurring within or adjacent to the Coachella Canal Area.

Draft Coachella Valley Multiple Species Habitat Conservation Plan/Natural Community Conservation Plan (CVMSHCP/NCCP)

CVMSHCP/NCCP is intended to protect and sustain viable populations of plant and animal species and their habitats (covered species) in perpetuity through the creation of a reserve system, while accommodating continued economic development and quality of life for residents of the Coachella Valley. The plan area encompasses approximately 1.1 million acres in the Coachella Valley and includes nine incorporated cities: Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage.

CVMSHCP/NCCP would provide for the creation of a reserve system to protect and manage approximately 725,780 acres of habitat for the covered species. The reserve system would be established from lands within 21 conservation areas that are either adjacent or linked by biological corridors. When completed, the reserve

system will include core habitat for covered species, essential ecological processes, and biological corridors and linkages to provide for the conservation of the proposed covered species.

The Public Use and Trails Plan element of CVMSHCP/NCCP provides for coordinated management of trails on public lands involving members of the public, local jurisdictions, and State and other Federal agencies. The Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California, recommends development and implementation of an interagency trails management plan to reduce or eliminate detrimental human activities within bighorn sheep habitat. The California Desert Conservation Area (CDCA) Plan Amendment for the Coachella Valley (December 2002) prescribes a combination of methods to avoid, reduce, or mitigate disturbance to bighorn sheep, including voluntary avoidance programs, closures, seasonal restrictions, and permit stipulations and mitigations. Other activities related to CVMSHCP/NCCP include the draft environmental impact report/environmental impact statement and receipt of an incidental take permit.

CDCA Plan Amendment for the Coachella Valley and Final Environmental Impact Statement

The Coachella Valley Plan amends the CDCA Plan for a 1.2-million-acre planning area encompassing the Coachella Valley. BLM administers approximately 28 percent, or 330,516 acres, of the planning area. BLM is developing the Coachella Valley Plan in coordination with the Coachella Valley Association of Governments in support of their efforts to prepare the Coachella Valley Multiple-Species Habitat Conservation Plan.

The Coachella Valley Plan includes goals, objectives, and management prescriptions in accordance with the Federal Land Policy and Management Act of 1976 for comprehensive management of desert ecosystems, including actions supporting recovery of 10 federally endangered species.

Draft CDCA Plan Amendment for the Coachella Valley, Draft Trails Management Plan, and Draft Environmental Impact Statement

BLM is developing the Draft CDCA Plan Amendment for the Coachella Valley and Draft Trails Management Plan developed in partnership with the Coachella Valley Association of Governments in support of their efforts to prepare CVMSHCP/NCCP. The Trails Management Plan will be incorporated into CVMSHCP/NCCP. Upon completion of the environmental impact statement/environmental impact report, BLM may adopt CVMSHCP/NCCP as an activity (implementation) level plan.

Northern and Eastern Colorado Desert Proposed Plan, an Amendment to the CDCA Plan, and Final Environmental Impact Statement

The Northern and Eastern Colorado Desert Proposed Plan amends the CDCA Plan for a 5.5-million-acre area in the southeastern part of the conservation area plan and provides for conservation of desert ecosystems for Federal lands in the planning area on a landscape basis—for BLM lands, Joshua Tree National Park, and the Chocolate Mountains Aerial Gunnery Range, managed by the U.S. Marine Corps Yuma Air Station. The plan includes goals, objectives, management prescriptions, and monitoring in accordance with the Federal Land Policy and Management Act of 1976 for comprehensive management of desert ecosystems, including the recovery of the federally endangered desert tortoise and Coachella Valley milk vetch.

Meccacopia Special Recreation Management Area Recreation Area Management Plan

The Coachella Valley California Desert Conservation Area Plan Amendment Record of Decision established the Meccacopia Special Recreation Management Area, which includes the Mecca Hills and Orocopia Mountains Wilderness Areas and adjacent public lands, including lands along the Coachella Canal. BLM is preparing a recreation area management plan, which will include a visitor study.

Santa Rosa and San Jacinto Mountains National Monument Proposed Management Plan and Final Environmental Impact Statement

This document is a cooperative effort between BLM and the U.S. Forest Service. The 272,000-acre national monument encompasses 86,400 acres of BLM lands and 64,400 acres of U.S. Forest Service lands in the Coachella Valley and surrounding mountains. Additional land managing entities within the national monument include the Agua Caliente Band of Cahuilla Indians, the California Department of Parks and Recreation, the California Department of Fish and Game, Riverside County, local jurisdictions, and private landowners. The management plan (1) provides direction for coordination among BLM, U.S. Forest Service, and various partners and (2) outlines proposed strategies to protect the values that the national monument was established to protect.

Environmental Impact Statement for the Proposed Issuance of an Incidental Take Permit Associated With the Agua Caliente Band of Cahuilla Indians Habitat Conservation Plan

The Service is preparing an environmental impact statement for the Agua Caliente Band of Cahuilla Indians Habitat Conservation Plan in Riverside County. The conservation plan is intended to support issuing an incidental take permit to the Agua Caliente Band of Cahuilla Indians from the Service under section 10(a)(1)(B) of ESA. The 87,000-acre planning area is located within the Coachella Valley in eastern Riverside County and includes lands within and near the tribe's reservation.

The proposed conservation plan is a comprehensive plan that would establish (1) a Mountains and Canyons Conservation Area in which certain lands are proposed to be dedicated to the reserve system and general and species-specific conservation measures would be imposed on covered projects and/or implemented by the tribe, and (2) a Valley Floor Conservation Area from which funding would generally be required for acquisition and management of additional reserve lands, certain lands would be dedicated to the reserve system, and additional conservation measures would be required to protect certain covered species.

County of Riverside General Plan Eastern Coachella Valley Area Plan

The Eastern Coachella Valley Area Plan is an extension of the County of Riverside General Plan and Vision Statement; this statement describes the physical, environmental, and economic characteristics that Riverside County hopes to achieve by the year 2020. The County of Riverside General Plan establishes policies to guide development and conservation within the entire unincorporated county territory, while the area plan provides standards and policy direction specifically for Eastern Coachella Valley.

City of La Quinta General Plan

The City of La Quinta General Plan has three components: the Master Environmental Assessment (MEA), the Comprehensive General Plan Policy Document, and the General Plan Environmental Impact Report.

The MEA analyzes the historic trends for each element of the city's general plan; provides an inventory of the city's current conditions and issues of concern, and provides analysis on the buildout of the general plan in the city and the broader planning area. The planning area is composed of the city's legal jurisdiction and two areas for potential future growth that currently are not part of the city.

However, should annexation occur in the future, these two areas already have been considered in the General Plan documents.

City of Palm Desert Comprehensive General Plan and Environmental Impact Report

This document provides the goals, policies, and programs to guide the development of the city of Palm Desert and to preserve its valued assets, resources, and quality of life and serves as the principal development guide for community development.

Chapter 2
Management Framework

Introduction

This chapter describes the management framework within and adjacent to the study area and the existing policies and management responsibilities of involved agencies that may influence development of the study area in the future. Administration of the land areas and associated environmental resources within the study area requires a coordinated effort among several entities that have varying degrees of management responsibility. In addition, Reclamation has issued several existing land use authorizations to second parties to use Project lands within the study area. Existing land uses, as well as existing environmental conditions, can be described as "limiting factors" to development. Reclamation cannot interfere with the legal rights previously granted to another party. Reclamation has an obligation to coordinate its planning activities with adjacent private and public landowners to ensure that authorized uses of its lands are compatible with adjacent land uses. (**Map 2.1, Coachella Canal Land Ownership**, shows land ownership in the study area and immediate area.)

Reclamation Responsibilities Within the Study Area

Reclamation maintains primary jurisdiction of the lands and associated resources within the study area; however, management of some resources, such as wildlife, are the responsibilities of other entities, as discussed later in this chapter. Reclamation is responsible for implementing and enforcing all Federal laws, regulations, and Executive orders dealing with natural resources on its lands. These include, but are not limited to, the following:

- National Environmental Policy Act of 1969, as amended
- National Historic Preservation Act of 1966, as amended
- Fish and Wildlife Coordination Act of 1958, as amended
- Endangered Species Act of 1973, as amended
- Executive Orders 11644 and 11989, Off-Road Vehicles on Public Lands, 1972 and 1977
- Executive Order 11990, Protection of Wetlands, 1977

- Executive Order 12962, Recreational Fisheries, 1995
- Executive Order 13007, Indian Sacred Sites, 1996
- Executive Order 13186, Conservation of Migratory Birds 2001

Land Use Authorizations

Section 10 of the Reclamation Project Act of 1939 (53 Stat. 1187) authorizes Reclamation to grant leases, licenses, permits, easements, and rights-of-way. All land use activities for specific use of Reclamation lands and water areas are authorized and managed under land use authorizations, such as lease agreements, license agreements, permits, rights-of-way easements, and other legal and binding contracts. Each land use authorization is subject to specific terms and conditions covering the use of the Federal estate. Reclamation's Yuma Area Office has copies of all authorized conveyance documents dealing with second party use of Reclamation lands. Lessees are restricted from conveying their permitted use to another party without Reclamation's approval. Land use authorizations may be issued only when they will not interfere with Reclamation project purposes. They are to be, for the most part, temporary in nature and contain restrictive language that protects current and future Federal land interests.

Reclamation's Land Use Authorization Directives and Standards state that Reclamation will prohibit any new exclusive/semiprivate use of Reclamation land unless directed otherwise in specific authorizing legislation and that existing private/semiprivate use will be eliminated when the use authorization expires, unless a formal planning process determines that there is a significant public need and benefit for the exclusive private/semiprivate use and the land is not needed for other public or project purposes. The Land Use Authorization Directives and Standards discussed here do not apply to private exclusive use, which may exist within concession areas. See "Concessions," discussed later in this chapter, for details regarding exclusive use within concession areas.

In addition, Reclamation issues right-of-use authorizations for all improvements within easements, such as culverts and bridges, pipelines, and utilities. Right-of-use authorizations are also considered for rock collecting, archeological investigation, airports, wells, mineral exploration and extraction (including sand and gravel), and material storage. Pesticide and herbicide application on Reclamation lands requires a plan and appropriate permits.

Acquisition of Reclamation Lands

A project's authorized purpose and related general laws provide the basis for Reclamation to both acquire and retain title to all land and land rights. The original agency purposes of irrigation, power, and navigation were supplemented

later with fish and wildlife conservation and recreation when these latter purposes became pressing national issues. To accommodate these added public purposes, the Congress, in the 1950s, recommended a joint acquisition policy for Reclamation and the U.S. Army Corps of Engineers, published in 43 Code of Federal Regulations (CFR) Part 8. Reclamation has closely followed the joint policy since that time.

Disposition of Reclamation Lands

Pursuant to section 204 of the Federal Land Policy and Management Act of October 21, 1976, Reclamation must review all its withdrawn lands to determine if they are needed for project purposes. Withdrawn lands not needed for project purposes should be returned to the public domain for administration by BLM.

In the case of acquired lands, Reclamation must determine if they are no longer needed for project purposes. These lands are reported as excess to the General Services Administration (GSA). GSA first offers the lands for sale to other Federal, State, or local public entities. If these entities do not want the lands, they are put up for sale through public bid at established fair market and competitive prices.

Off Highway Vehicle (OHV) Use

Unless officially designated, Reclamation lands are closed to OHV use. Forty-three CFR, Part 420, formulated OHV use policy to protect the land resource, promote the safety of all users, minimize conflicts among land users, and ensure that any permitted use would not result in significant adverse environmental impact or cause irreversible damage to existing ecological balances. The policy states, "Reclamation lands are closed to off highway vehicle use, except for an area or trail specifically opened to use of off highway vehicles." Areas permitted for OHV uses are to be evaluated and the use to be judged compatible with adjacent private and public lands. Executive Orders 11644, February 8, 1972, and 11989, May 24, 1977, provide further guidance on managing OHVs.

Activity-Based Costing/Management

To satisfy a commitment to the President's Management Agenda, the Department of the Interior (Interior) directed its bureaus and offices to implement a methodology that links the full costs of resources to business processes and outputs. This methodology was first implemented in 2003 and is commonly referred to as Activity-Based Costing/Management (ABC/M). By linking costs of resources to business processes and outputs, Reclamation and other Interior agencies will be able to demonstrate the following:

- How funds were used
- What was produced with those funds
- How that work contributes to achieving Interior goals
- How to better estimate future work and accomplishment with available resources

To implement an ABC/M approach to cost management, Reclamation will do the following:

- Link our work to Interior activities
- Track the costs associated with those activities
- Align cost and activities to strategic goals
- Link costs to performance data, namely outputs and outcomes

Reclamation will link its activities through an 18-digit cost authority account. Each applicable cost account will tie to an ABC activity in Interior's four goal areas. As described in Interior's 2003–2008 Strategic Plan, its four primary mission areas are (1) resource protection, (2) resource use, (3) recreation, and (4) serving communities. Each Reclamation cost account must link to one Interior-level ABC activity that best reflects the work performed using that cost account.

Comprehensive Condition Assessments

In accordance with applicable Interior requirements and Real Property Executive Order 13327, all Interior bureaus are required to conduct Comprehensive Condition Assessments (CCA) of all constructed assets that meet a $50,000 threshold in current replacement value. Under Interior's Strategic Plan, performance measures exist that require the computation of the Facility Condition Index (FCI), which is an indicator of the general condition of a building or facility computed as the ratio of the cost of identified maintenance needs compared to its current replacement value. In fiscal year 2004 (October 1, 2003, to September 30, 2004), Reclamation completed an initial inventory of its buildings and recreation sites and determined which facilities met the $50,000 current replacement value threshold.

As part of this initial review, Reclamation exempted any buildings and facilities that are being reviewed under an existing field review or examination program (i.e., facility reviews, review of operation and maintenance [RO&M], or power RO&M programs). Facilities such as dam and powerplants are currently being addressed under Reclamation's Facility Reliability Rating system. The remaining facilities and buildings, including recreation sites, are being inventoried as part of CCA. CCA inventories are to be limited to those reserved works that are operated

and maintained by Reclamation. The CCA will identify the relative condition of the reserved works and assist in determining the amount and priority of maintenance needs associated with these facilities for budgeting, funding, and possible disposal.

In addition to the initial 2004 inventory of recreation area buildings and facilities, Reclamation conducted a preliminary CCA of these facilities and calculated the FCI of each. The objective of conducting the preliminary inventories was to establish baseline FCI values. On the basis of the scope of the initial inventory, each building or recreation site with a current replacement value of over $50,000 is to receive a CCA field review every 5 years, beginning in fiscal year 2005.

Government Performance and Results Act

The Government Performance and Results Act of 1993 (GPRA) was enacted to improve program effectiveness and accountability. GPRA encompasses management themes and objectives implemented by business and Government for continuous improvement:

- Management of change
- Focus on the customer
- Finding and maintaining a competitive advantage
- Continual performance improvement

To achieve these objectives, GPRA requires Government agencies to do the following:

- Set strategic and annual performance goals
- Measure and report annually on their progress of achieving annual goals
- Use performance information to improve management decisionmaking and resource allocation to address the most critical issues that are supportive of the organizational mission

Specifically, GPRA requires that Federal agencies submit the following items to the Office of Management and Budget (OMB) and the Congress:

- A **Five-Year Strategic Plan**, with revisions every 3 years
- **Annual Performance Plans** establishing performance goals
- An **Annual Performance Report** that describes the success or failure in achieving annual goals and identified areas in which activities or goals need to be revised in the future

- **Periodic Evaluations** of program performance, efficiency, effectiveness, and intent

- **Linkage to the Budget** as required by OMB Circular A-11, which calls for agencies to link their budgets to their goals to demonstrate the level of discretionary appropriations used to achieve goals

Reclamation is currently operating under its 2000–2005 Strategic Plan. Reclamation is currently revising its Strategic Plan to streamline the mission goals and to better link the goals with the budget and to focus on accomplishing Reclamation's mission.

Reclamation's mission and three primary mission goals as defined in its 2000–2005 Strategic Plan are as follows:

- Management of water and related resources: Mission Goal 1 calls for Reclamation to manage, develop, and protect water and related resources to meet the needs of current and future generations.

- Management of facilities: Mission Goal 2 ensures that Reclamation operates and maintains facilities safely, reliably, and efficiently to provide project benefits.

- Management of the workplace, human resources, and focus on the customer: Mission Goal 3 recognizes the need for Reclamation to work with customers and employees to advance its organizational effectiveness.

As stated previously, GPRA requires agencies to develop Strategic Plans that include the comprehensive mission of the organization; general goals and objectives, including outcomes; and a description of how goals will be achieved. Annual performance plans must include annual goals, performance indicators, data validation, and a discussion of how the annual goals relate to strategic goals.

Recreation program goals and other resource related goals have been established that apply indirectly to how Coachella Canal Area lands are managed now and how they will be managed in the future. Annual goals address conducting recreation compliance reviews, preparing Action Plans, and identifying corrective actions over a specified period of time. Accomplishing the annual program goals will improve the quality of recreation areas. Annual performance goals are periodically adjusted as the need arises and will likely be modified pending the completion of a new Strategic Plan.

Concessions

Reclamation authorizes and manages concessions on its lands pursuant to its Policies and Directives and Standards for Concessions Management.

Reclamation and any managing partners would ensure that concessions are developed and managed to meet public needs, protect natural and heritage resources, provide stewardship of all lands and waters, and to provide a variety of goods and services to the public while being consistent with authorized project purposes. All concessionaires make individual business decisions to enter into legal, binding contracts with Reclamation for operating commercial businesses on Federal lands for a specified period of time. Among other things, the right of renewal, fixed assets, trailer lease sites, and the length of a contract are governed by the existing terms and conditions of a contract. The terms and conditions of an existing contract are not changed without mutual consent of both parties. Reclamation policy determines who is entitled to the new concession opportunity upon expiration of an existing contract. Any existing concessionaire will have to compete with other bidders who officially respond to a bid package (prospectus) sent out by Reclamation. A prospectus will contain enough detailed information to allow bidders to submit respective proposal(s) for the operation of a commercial business to Reclamation for evaluation and selection.

Before issuing a concession prospectus and request for proposal, Reclamation would complete a formal Commercial Services Plan (CSP). At a minimum, the CSP must determine the number of concessions necessary to meet the public needs, the type of facilities and services to be provided, the financial feasibility of the concession(s), and the location(s) appropriate for commercial activities. The complexity of CSPs will vary according to location, past visitor use, anticipated revenues, and other factors. Public involvement would be an integral part of any commercial services planning effort. Public involvement would be initiated early and continued throughout the commercial services planning process. An appropriate level of environmental analysis would also be conducted.

If a concession operation were contemplated, a financial feasibility evaluation would be conducted, and pertinent data documented in the CSP. The evaluation should be commensurate with the types of facilities, goods, and services to be provided and other factors that may influence the incoming concession operation. Information such as estimated fees to be returned to the United States, justification for the proposed length of the concessions contract, and any underlying assumptions regarding the concessionaire's capital investment in the concession operation should be addressed in the CSP.

Reclamation's Concessions Management policy states, "Exclusive use[1] of the Federal estate will not be allowed, and existing exclusive use will be removed as soon as possible." Exclusive use, as discussed here, applies only to concession operated areas. Exclusive private/semiprivate use outside of a concession area is

[1] Exclusive use is any use that excludes other appropriate recreation use or users for extended periods of time. Exclusive use includes, but is not limited to, boat docks, cabins, trailers, manufactured or mobile homes, structures, roads, or other amenities that are determined by Reclamation to be exclusive use.

addressed in separate Reclamation directives and standards. See "Land Use Authorizations" previously discussed in this chapter, for a discussion on exclusive private/semiprivate land use authorizations.

The Office of Inspector General (OIG) has prepared a report, dated May 2000 (Report No. 00 I 376), that addresses all concessions managed by Reclamation. At all Reclamation areas and pursuant to the OIG report, Reclamation has agreed to the following:

- Establish and implement an oversight process to ensure that concessions comply with existing contract provisions, especially in the areas of building improvements, annual inspections, and prices charged to the public.
- Complete and issue detailed guidance and procedures to fully implement the new Policies and Directives and Standards.
- Develop a formal action plan to assess and correct the health and safety deficiencies and degradation of land and water resources within the concessionaire area.
- Establish a review process to ensure that all new concessions and newly issued and reissued contracts are in compliance with Reclamation's Policies and Directives and Standards.
- Develop a formal action plan to bring Reclamation managed contracts into compliance with its Policies and Directives and Standards.

In addition, OIG identified the 10 most significant contract provisions that each concession permit must contain:

- Contractor default
- Building improvements
- Operation and maintenance (O&M) plans
- Title to fixed assets
- Franchise fees
- Exclusive use
- Prices charged for services
- Safety program
- Recordkeeping
- Operations review and evaluation

Fire Management

Pursuant to the Secretary of the Interior's policy letter dated January 18, 2001, Reclamation must address the implementation actions contained in the updated

2001 Federal Wildland Fire Management Policy document. The 2001 Wildland Fire Management Policy states, among other things, that every area with burnable vegetation must have an approved fire management plan, which is a strategic plan that defines a program to manage wildland and prescribed fires based on the areas's approved land management plan. Fire management plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations. Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners. Accordingly, Reclamation will work with State, tribal, and non-Federal organizations, as well as other Federal agencies, to implement the 2001 Federal Wildland Fire Management Policy.

Recreation

P.L. 89-72, as amended, encourages Reclamation to seek State and local partners to manage the recreation resources on its lands. Throughout the 17 Western States, Reclamation has numerous successful partnerships with non-Federal entities. In other instances and pursuant to P.L 89-72, as amended, Reclamation has transferred to other Federal agencies the jurisdiction of its lands, such as national recreation areas, national wildlife refuges, or national forest lands if the Reclamation project is within or adjacent to a National Forest System. If Reclamation lands are transferred to another Federal agency, all resources, including recreation, are managed using the rules, regulations, and funding sources of that agency. When Reclamation cannot obtain either a non-Federal or Federal partner, Reclamation manages its lands and resources pursuant to existing laws and regulations and specific Reclamation authorities and limitations. Chapter 3, "Planning Issues, Opportunities and Constraints," provides additional discussion of opportunities and constraints in securing managing partners.

Responsibilities of Other Entities Within the Study Area

In addition to Reclamation, several agencies have responsibilities within the study area.

Bureau of Indian Affairs

BIA's responsibility is "the administration and management of 55.7 million acres of land held in trust by the United States for American Indians, Indian tribes, and Alaska Natives. There are 562 Federal recognized tribal governments in the United States. Developing forestlands, leasing assets on these lands, directing

agricultural programs, protecting water and land rights, developing and maintaining infrastructure and economic development are all part of the agency's responsibility" (BIA, 2005).

Reclamation works with BIA and area Indian tribes in identifying Indian trust assets that may exist on Reclamation lands. When implementing any ground-disturbing activities, Reclamation contacts BIA and area tribes. If trust assets are found, BIA works with Reclamation in identifying potential impacts, analyzing those impacts, and developing a strategy to avoid adverse impacts. If impacts cannot be avoided, appropriate mitigation measures are implemented.

Bureau of Land Management

BLM manages 262 million acres of public lands, primarily in the 12 Western States. BLM's vision is to "enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources" (BLM, 2005).

BLM and Reclamation regularly coordinate on matters of mutual concern. For example, pursuant to the Federal Land Policy and Management Act, Reclamation works with BLM to review the status of the public lands Reclamation withdrew from the public domain for Reclamation project purposes. If the withdrawn lands are not needed for project purposes, BLM and Reclamation work together following a process that will return Reclamation lands back to BLM.

U.S. Fish and Wildlife Service

The mission of the Service is to "work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continued benefit of the American people."

The Service and Reclamation regularly cooperate on Fish and Wildlife Coordination Act and ESA compliance activities. These activities are usually associated with Reclamation's project planning efforts in preparing NEPA compliance documents such as environmental assessments and environmental impact statements for Federal actions occurring on lands under the administration of Reclamation.

California Department of Fish and Game (CDFG)

The mission of CDFG is to "manage the State's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public."

CDFG provides expertise and assistance to Reclamation on special status species and critical habitat as well as other wildlife related matters. As the State agency that enforces fish and game regulations within the State of California, CDFG would conduct law enforcement activities on Project lands, if necessary.

California State Historic Preservation Office

The California SHPO and area Indian tribes have an interest in the Coachella Canal Area because Reclamation is required to consult with SHPO and area tribes concerning the identification of cultural resources within the study area. Cultural resources include archeological sites or traditional cultural properties, including Indian sacred sites. During specific planning periods and prior to any implementation efforts, SHPO and Reclamation work together to identify implementation actions that could potentially affect the cultural resources within the study area.

Riverside County

Within the Coachella Canal Area, Riverside County Regional Parks and Open Space District operates and maintains Lake Cahuilla County Park, located 4 miles southeast of La Quinta. Park lands are leased by the county from CVWD, which leases the lands from BLM and Reclamation. The park consists of about 845 acres—710 acres of land and the 135-acre Lake Cahuilla. The Riverside County Regional Parks and Open Space District is an independent agency governed by the board of supervisors (County of Riverside, 2005).

Coachella Valley Water District

The Coachella Valley Water District provides five water-related services: domestic water, sanitation (wastewater), recycled water, irrigation and drainage, and stormwater protection. CVWD has a deep history and dates back to 1915. CVWD was also one of the original signatories to the Party of Seven Agreement of 1931, which divided California's share of the Colorado River.

CVWD's mission is "To meet the water related needs of the people through dedicated employees providing high quality at reasonable cost." With headquarters located in the city of Coachella and urban water functions centered in Palm Desert, CVWD has nearly 640,000 acres within its boundaries. Most of the service area is in Riverside County, but CVWD also extends into Imperial and San Diego Counties. A governing five-member Board of Directors is elected from five general divisions for terms of 4 years each.

The 123-mile-long Coachella Canal delivers Colorado River water from the All-American Canal to irrigate agricultural land in the Coachella Valley, primarily to

an area known as Improvement District 1, where virtually all of the valley's nearly 60,000 acres of cultivated farmland are located. A 500-mile-long underground delivery system of concrete pipes conveys the water to the crops.

Coachella Valley Recreation and Park District

Currently, CVRPD has a lease agreement with Reclamation (No. 1-07-34-L1222) for the development of three separate areas on Coachella Canal Area lands for recreation. The agreement expires April 23, 2026. The agreement is subject to and subordinate to Project purposes and needs of Reclamation and CVWD.

Responsibilities of Other Entities Adjacent to the Study Area

Following are descriptions of the responsibilities of other agencies and entities for lands adjacent to the study area.

Bureau of Indian Affairs

The Torres-Martinez Indian Reservation consists of approximately 24,800 acres of land, located in scattered tracts within and adjacent to the study area. The reservation was established by Executive order on May 15, 1876. An Act of February 11, 1903 (32 Stat. 822) added 640 acres of State lands to the reservation in exchange for lands to be set apart for the Torres Band under the Act of January 12, 1891 (26 Stat. 712-14). The governing body of the Desert Cahuilla Tribe is the general council, which consists of all enrolled adult voting members of the tribe 18 years of age or older. The tribal council implements all ordinances, resolutions, and motions of the general council and represents the tribe in all negotiations with local, State, tribal, and Federal governments and private entities and their agencies (Torres-Martinez Indian Reservation, 2005).

Bureau of Land Management

BLM manages large parcels of land adjacent to the study area, with emphasis on providing a wide range of natural resource based recreation activities. Types of recreational use typically found on BLM managed lands include hiking, horseback riding, camping, nature study, hunting, and OHV use. BLM maintains a system of hiking and equestrian trails that traverse the Santa Rosa Mountains.

BLM also manages the Desert National Scenic Area, which consists of approximately 200,000 acres of the Santa Rosa and San Jacinto Mountains southwest of the Coachella Valley. BLM has also designated two Areas of

Critical Environmental Concern (ACEC) near the northwestern end of the Coachella Valley: Big Morongo Canyon and White Water Canyon near ancient Lake Cahuilla. The ACEC designation is intended to protect significant natural and cultural resources, to provide compatible uses, and to provide monitoring. Special management prescriptions are created specific to each site. Prescriptions include signing and control of user and vehicle access, increased field presence, and restricted mineral exploration and development.

BLM is also a participant in the Coachella Valley Fringe-Toed Lizard Habitat Conservation Plan, which called for the establishment of three preserves, each containing sand dune habitat vital to the survival and propagation of the lizard. The Coachella Valley Preserve, at 15,000 acres, is the largest of the preserves. It is located in Thousand Palms Canyon, which is within the Indio Hills, bordering on the northern edge of the Coachella Valley, halfway between Palm Springs and Indio. It contains the last undisturbed watershed in the Coachella Valley and the sources of water-carried and wind-borne sand that create the dune habitat of the federally endangered Coachella Valley fringe-toed lizard. BLM participates in the staffing and operation of a visitor center located at the entrance to the Coachella Valley Preserve. In addition to BLM, the Coachella Valley Preserve System is managed collectively by the Service, BLM, CDFG, California Department of Parks and Recreation, and The Nature Conservancy.

In addition, BLM manages more than one-third of the Santa Rosa Mountains Wildlife Habitat Area. Remaining lands are managed by CDFG, U.S. Forest Service, and the University of California. BLM also helps manage the Santa Rosa Mountains Wilderness, which consists of 64,340 acres, and may include other Federal, State, and private lands. The wilderness is contained within the Santa Rosa/San Jacinto Mountains National Monument, which is variously managed by BLM and the U.S. Forest Service, State and local agencies, the Agua Caliente Band of Cahuilla Indians, and private entities and landowners.

Orocopia Mountains Wilderness is located southeast of the study area; it consists of 40,735 acres of open desert valleys, ridges, and eroded canyons. Mecca Hills Wilderness, located immediately west of the Orocopia Mountains Wilderness, consists of 26,036 acres of badlands.

The Whitewater River Floodplain Preserve, located south of Interstate 10 and east of Indian Avenue, consists of 1,230 acres of BLM and CVWD land. One of the primary purposes of this preserve is to protect and enhance the habitat of the Coachella Valley fringe-toed lizard. Dos Palmas Preserve is an oasis of fan palms located about 10 miles southeast of Mecca.

National Park Service

This mission of the National Park Service is to “promote and regulate the use of the. . .national parks. . .which purpose is to conserve the scenery and the natural

and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The National Park Service's 557,802-acre Joshua Tree Wilderness is located northeast of the study area. The lower, drier Colorado Desert dominates the eastern half of the wilderness, while the slightly cooler, moister Mojave Desert covers the western half.

U.S. Fish and Wildlife Service

The Service manages the 13,000-acre Coachella Valley National Wildlife Refuge (NWR), located just west of Indio. Coachella NWR contains the majority of critical habitat within the Coachella Valley Preserve (see "Bureau of Land Management") for the Coachella Valley fringe-toed lizard. Habitat consists of palm oasis woodlands, perennial desert pools, and blow-sand habitat, as well as the State's second largest grove of native fan palms and Coachella milk-vetch, a species of special concern. The refuge also provides for the only significant acreage that is not subject to several multiple uses from the recreating public. It is almost entirely closed to the public to protect the Coachella Valley fringe-toed lizard. However, horseback riding and hiking are allowed on designated trails.

California Department of Fish and Game

CDFG helps manage the 104,000-acre Santa Rosa Mountains Wildlife Habitat Area, located about 15 miles southwest of Indio in the foothills and upper elevations of the Santa Rosa Mountains. The primary goal of this wildlife habitat area is to manage the population of Peninsular bighorn sheep within the Santa Rosa Mountains by preserving the essentially pristine character of its habitat. CDFG has designated much of the Santa Rosa Mountain range as a State game refuge. The Coachella Valley Ecological Reserve, located east of Indio, about 1 mile north of Highway 10, also was established to protect this species and its habitat (CDFG, 2005).

Riverside County

The Coachella Canal Area is contained within Riverside County, the fourth largest county in California. The county, which stretches nearly 200 miles across and comprises more than 7,200 square miles, shares borders with densely populated Los Angeles, Imperial, Orange, San Diego, and San Bernardino Counties. Between 1980 and 1990, the population grew by more than 76 percent, making it the fastest-growing county in California (County of Riverside, 2003, 2005).

The five-member board of supervisors is the county's governing body, serving as both legislative and executive branches of the county government. In its

legislative role, the Board passes local laws (called ordinances) which govern activities ranging from land use, to building and safety codes. In its executive role, the board collectively creates and guides operation of programs to serve the county. The board oversees an annual budget of over $1 billion and appoints a county executive officer who manages the day-to-day activities of all county departments.

Although Riverside County has only one developed trail that it maintains, trails are discussed here because the county serves to coordinate connectivity in an effort to prevent fragmentation. Some communities have trails that have been built and are maintained by another entity such as a homeowners' association, a community service area, or a local park and recreation district. However, often these trails lack connectivity to other parts of the county and other trail systems. Providing connectivity between trails within the county and State and Federal trails, historic trails, and trails in other jurisdictions is addressed within the County of Riverside General Plan.

In general, the County of Riverside General Plan recognizes four types of recreational trails:

Regional Trails: Regional trails are the main trails within the county; they are generally maintained and operated by the Riverside County Parks and Open Space District. Regional trails are designed to provide linkages between communities and other areas. They are also designed to connect with State and Federal trails as well as trails within other jurisdictions. Generally, the county strives to designate an easement of 14 to 20 feet wide and a width of 10 feet for regional trails.

Community Trails: Community trails are designed to link areas of a community to the regional trail system and link areas of a community with each other. Community trails are typically maintained and operated by a local parks and recreation district. Easements for community trails are generally 10 to 14 feet wide with a trail width of 8 feet.

Historic Trails: Historic trails are designated routes that feature the historic resources found within the area. Historic trails generally have regional or community trail designations that either follow or parallel the route. This often provides the opportunity to recognize the historic significance of the route and affords the opportunity to develop interpretive centers and signage.

BLM manages and maintains BLM trails, but they are included within the County of Riverside General Plan to indicate connectivity.

Coachella Valley Recreation and Park District

CVRPD, the largest recreation service provider in the Coachella Valley, provides public park and recreation facilities for an area that extends from Palm Desert to the Salton Sea. CVRPD, which is overseen by a five-member elected board, is funded by a mixture of property taxes, Quimby fees, grants, special assessments, redevelopment tax-increment funds, in-lieu fees, voter-approved bonds, program revenues, and maintenance agreements. CVRPD funds are used for facility maintenance, program development, and community activities.

CVRPD adopted a Five-Year Capital Improvement Program in 2000 and is now in the process of updating it. The plan lists capital improvements, costs, priorities, and methods of financing. CVRPD currently has commitment for new facilities. However, due to the recent budget deficits, these commitments "exceed current and expected revenues," as stated in CVRPD's *Annual Financial Report for the Year Ended June 30, 2004*. Therefore, no capital improvements are planned for the 2004-2005 fiscal year (Municipal Service Review, 2005).

CVRPD owns and maintains numerous facilities throughout the Coachella Valley, including community centers, gymnasiums, health and fitness centers, pools, and ball fields. Working in partnership with the management of the agencies within its boundary, CVRPD strives to coordinate planning and avoid the duplication of services. CVRPD's objective is to "fill the gaps" in the provision of park and recreation services. For example, within the city of Indio, the city provides the park facilities, and CVRPD provides recreational programs. CVRPD also provides recreational-oriented facilities such as community centers, aquatic parks, and golf centers.

In addition, Riverside County provides numerous facilities within CVRPD's boundary, including parks and community centers.

Coachella Valley Association of Governments

As discussed in chapter 1, the Coachella Valley Association of Governments has prepared a draft of the *Coachella Valley Multiple Species Habitat Conservation Plan and Natural Communities Conservation Plan*, which is designed to conserve large, contiguous undeveloped habitat areas for a wide range of plant communities and special status species animals. The plan covers more than 1.1 million acres in the Coachella Valley and surrounding mountains. The plan is intended to standardize mitigation and compensation measures for species of concern on a regional basis and to satisfy the requirements of Federal and State endangered species protection laws.

La Quinta

The city of La Quinta is located in the central Coachella Valley about 2 miles south of Interstate 10; it borders Indian Wells to the west, Indio to the east, and unincorporated communities to the north and south. La Quinta is in the center of the highest-growth area of the valley, but its borders with parts of unincorporated Riverside County allow for expansion. La Quinta is primarily a resort residential community, and it is one of the fastest growing communities in California. Since its incorporation in 1982, La Quinta's population has increased from 5,260 to 32,500 full-time residents, plus another 12,000 part-time residents during the winter and spring. With its international reputation for resort and golf amenities, resort and commercial development generates a majority of the city's revenues. The city's most recent economic development plan focuses on "attracting and enhancing revenue-generating enterprises, protecting open space and environmental attributes, and expanding recreation opportunities for La Quinta's residents" (City of La Quinta, 2002, 2005).

Coachella

The city of Coachella, located at the southernmost end of the urbanized Coachella Valley, has an estimated population 27,655 (January 2004). It covers 32 square miles of mixed urban, agricultural, commercial, and vacant land. Coachella is experiencing rapid growth (30 percent since 1990) fueled by expanding tourist-oriented resort facilities, Indian gaming, agricultural production, and its location at major highways, Interstate 10 and State Highways 86 and 111. Currently, much of the area surrounding the city is under cultivation, and the city is pursuing an extensive program of planning, design, and construction to respond to continuing growth (City of Coachella, 2001, 2005).

Indio

Indio, Coachella Valley's first incorporated city (1930), is located on Interstate 10, northwest of La Quinta. It is the geographic mid-point of both Riverside County and the Coachella Valley. Like other communities in the study area, Indio is growing rapidly. It has a population of 54,221 (July 2002) and covers about 27 square miles. In addition to its permanent residents, Indio adds 8,800 part-time residents during the winter and spring, and its festivals and special events attract more than 500,000 visitors annually. The city is experiencing rapid residential, commercial, and industrial growth (City of Indio, 2005).

Mecca

The community of Mecca, located in the southeast portion of the study area, has a population of 5,402 (2000) and covers 1.3 square miles. Industries providing

employment include agriculture, forestry, fishing and hunting, and mining. Mecca's median household income is substantially below the State average, and its unemployment rate is above the State average.

Chapter 3
Planning Issues, Opportunities, and Constraints

Introduction

This chapter describes the key factors—planning issues, opportunities, and constraints—that influenced development of this RMP/EA.

The information provided in this chapter establishes some of the parameters that influence how the study area is managed today and how it will be managed in the future. In an effort to accommodate future demand and to meet public expectations, managers must take advantage of the available opportunities to secure supplemental funding and/or secure a managing partner or cooperator to share in the recreation management responsibilities within the study area. Managers have to formulate a strategy that addresses the identified issues and concerns and takes into consideration existing constraints or limitations.

Reclamation followed an established land use planning process to prepare this RMP/EA. (See figure 3.1, Steps in Resource Management Planning Process.) This process focuses on resolving issues that arise over the use and management of public lands and resources. A planning issue can be defined as an unrealized opportunity, an unresolved conflict or problem, an effort to implement a new management program as a result of new initiatives or laws and regulations, or a resource or public use value being lost. Not all issues are related to resource management; therefore, an RMP/EA cannot resolve all issues—some must be resolved administratively.

For this RMP/EA, Reclamation identified issues concerning the conflicting demands for consumptive and non-consumptive uses of the land. The primary challenge is to protect natural and cultural resources while allowing uses that have a minimum effect on these resources. Reclamation used three areas of investigation to identify planning issues, opportunities, and constraints:

- Public involvement
- Collection and evaluation of existing resource data
- Review of its internal programs and policies

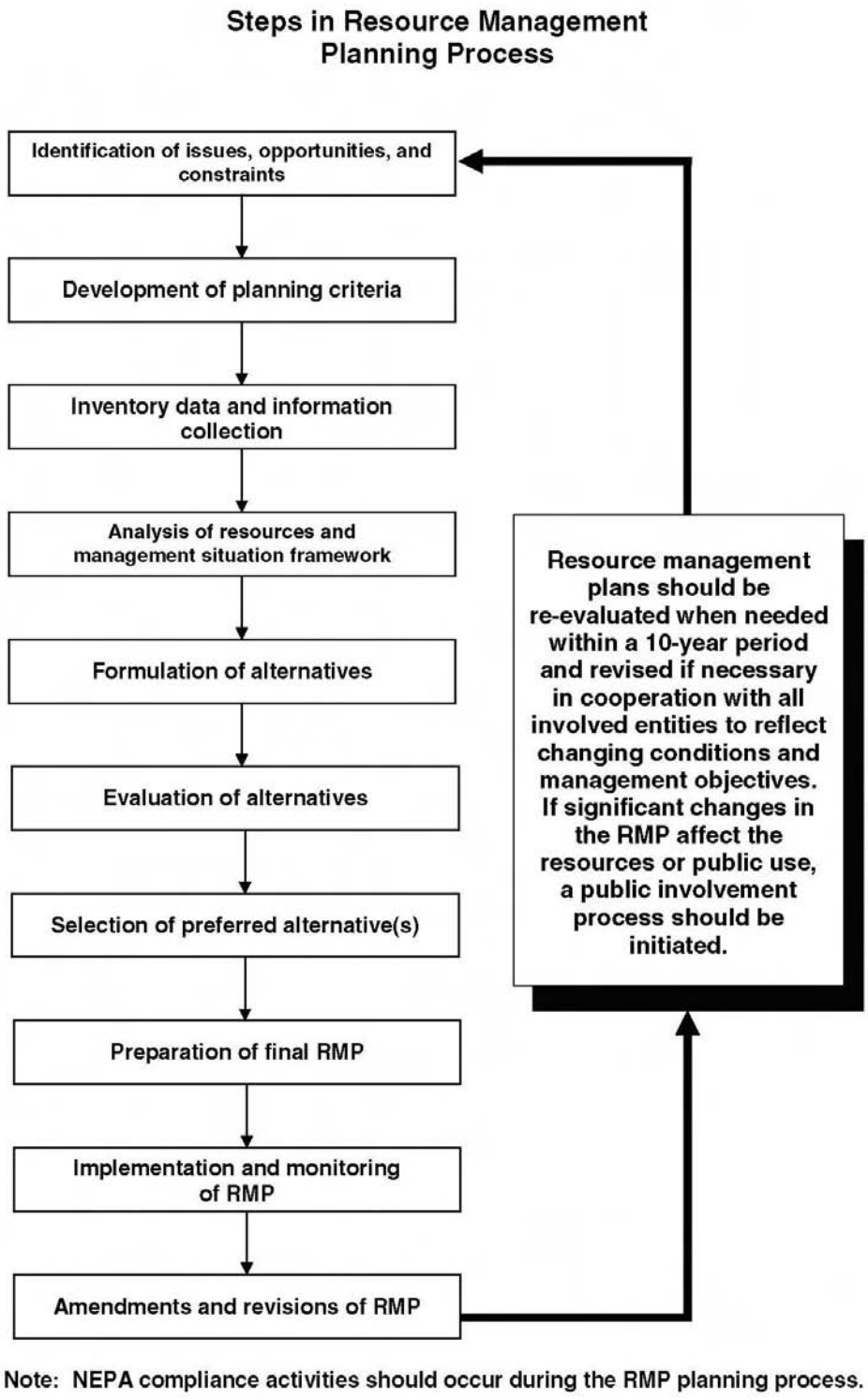

Figure 3.1 – Steps in Resource Management Planning Process.

The planning issues, opportunities, and constraints identified in these investigations allowed Reclamation to formulate the necessary management actions and implementation strategies, as outlined in Chapter 6, "Resource Management Plan." Chapter 5, "Affected Environment and Environmental Consequences," analyzes the effects of implementing the possible management plans (or "alternatives") on resources in the study area.

Planning Issue Identification

To identify issues and concerns regarding management of the study area, this planning effort incorporated a public involvement process, as described in chapter 1. In addition, Reclamation resource specialists collected and evaluated existing resource data and reviewed Reclamation programs and policies. Reclamation identified issues and concerns similar to those the public identified. Generally, the issues and concerns relate to the following:

- The Boulder Canyon Project Act mandated authorized purposes of delivering water for beneficial uses within the Coachella Valley and compatibility with other land uses within the study area.
- Providing recreation opportunities and facilities within the Coachella Canal Area study boundary.
- Conserving and protecting critical habitat and special status species.
- Continued compliance with Federal laws, regulations, and Executive orders dealing with consultation efforts with the Service, BIA, SHPO, and area Indian tribes.
- Protecting and enhancing natural and cultural resources.
- Accommodating the many demands for use of Reclamation lands by the growing communities adjacent to the Coachella Canal Area.
- Compatibility of land uses within the study area and adjacent land uses—in particular, compatibility with the proposed CVMSHCP/NCCP.
- OHV use and rehabilitating degraded lands within the study area.
- Abundance of trash and litter within the study area.

Reclamation then grouped these issues and concerns into eight "issue categories." The issue categories helped to (1) define the scope of the issues and concerns, (2) develop specific goals and objectives to address the issues and concerns, and (3) formulate management actions to accomplish the goals and objectives. The goals and objectives and associated management actions are further discussed in Chapter 6, "Resource Management Plan."

This RMP/EA addresses the following issue categories:

- General Management Issue Category
- Land Use Issue Category
- Partnership Issue Category
- Boulder Canyon Project Act Issue Category
- Natural and Cultural Resources Issue Category
- Recreation Management Issue Category
- Public Information and Education Issue Category
- Public Health and Safety Issue Category

Following are descriptions of each issue category.

General Management Issue Category
General management issues and concerns focused on developing a 10-year management strategy that takes into consideration mandated Federal laws, rules, regulations, and Executive orders; Reclamation's Policies and Directives and Standards; and State and county laws, regulations, and ordinances.

Land Use Issue Category
Land use issues and concerns focused on developing a land use strategy that would attempt to accommodate the increased demands of local communities, private developers, and the public while protecting the natural and cultural resources and the Boulder Canyon Project Act congressionally authorized purposes.

Partnership Issue Category
Partnership issues and concerns focused on the need to create sustainable partnerships with qualified non-Federal government entities and special interest groups to assist Reclamation in the management of the study area lands.

Boulder Canyon Project Act Issue Category
Boulder Canyon Project Act issues and concerns focused on developing a land management strategy that would not interfere with CVWD's ability to operate and maintain a Federal water project authorized by the Congress.

Natural and Cultural Resources Issue Category
Natural and cultural resource management issues and concerns focused on protecting cultural resources and avoiding or mitigating cultural resource impacts, and protecting and restoring high value desert vegetation and associated wildlife including habitat for special status plants and wildlife. High value habitat includes relatively undisturbed desert shrub and desert wash vegetation, aeolian sand fields, and riparian cottonwood-willow oasis.

Recreation Management Issue Category
Recreation management issues and concerns focused on managing unauthorized OHV use; providing non-motorized, multi-use trails; providing recreation access across Reclamation lands to adjacent lands; and providing recreation facilities and opportunities to meet the growing demand in the Coachella Valley.

Public Information and Education Issue Category
Public information and education issues and concerns focused on providing a variety of information about the study area; providing appropriate signing detailing the rules and regulations for the use of Reclamation lands; and providing a limited variety of interpretative opportunities for the recreating public.

Public Health and Safety Issue Category
Public health and safety issues and concerns focused on providing an appropriate level of enforcement of the rules, regulations, and land restrictions; removing trash from the study area; and preventing this unauthorized use in the future.

Management Opportunities

Opportunities exist within the study area to enhance, protect, and interpret the natural resources of the area. Opportunities exist to provide a range of recreation opportunities and facilities while not negatively affecting existing natural resources. Pursuant to section 106 of the National Historic Preservation Act, opportunities exist to implement management actions that would include systematic site evaluation and protection and interpretation of cultural resources for public education and enjoyment. Cost-sharing opportunities for recreation purposes with other Federal, State, and local agencies could increase the capability of Reclamation to successfully manage the Coachella Canal Area. Public-private partnerships with profit and non-profit organizations should be considered in any future planning activities. Formation of local citizen and advisory groups and local organizations and individuals could directly or indirectly support management of the area. Funding through grants and cooperative agreements is important if Reclamation, as well as other land managing entities, wish to meet future recreation demand.

Following are examples of several funding and management opportunities available to assist in managing lands and resources within the study area whether Reclamation is managing the area or if it has a managing partner.

Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA)

Eligible projects under the Public Lands Highway Discretionary Fund include, but are not limited to, planning for Federal programs that benefit recreation

development, parking, interpretive signage, trails, roadside rest areas, sanitary and waste facilities, and acquisition of certain lands. Efforts to identify proposed projects should be coordinated between Federal, State, and local entities. Close coordination with the State and Federal Highway Departments especially should occur at the early stages of project identification and formulation.

National Park Foundation Grants Program

The National Park Foundation provides funding to parks for innovative, concrete projects that provide tangible and lasting benefits. The program encourages fresh approaches to park problems and projects that help build an understanding of, and a constituency for, park values. The program funds any project that has tangible benefits to parks. Grants that are most competitive range from $3,000 to $40,000, with no matching funds required. However, projects that leverage a National Park Foundation grant with matching funds, public or private, are preferred.

Toolbox for the Great Outdoors

The *Toolbox for the Great Outdoors* (Toolbox) is a directory of Federal and State programs and other resources that can enhance visitor experiences at Federal recreation areas. The Toolbox was developed by the American Recreation Coalition in cooperation with the Federal cosponsors of Partners Outdoors XI, held in Henderson, Nevada, in January 2002. The Toolbox was designed for use by Federal land managers as well as recreation, tourism, and conservation community leaders eager to expand the quality of visitor experiences. Special messages from the leaders of six key Federal agencies about the Toolbox and about the vital role of partnerships are showcased on an interactive CD. The Toolbox, which can be used by virtually all personal computers and operates in an enhanced mode while connected to the Internet, contains multimedia overviews of 20 creative tools and more than $1 billion annually in potential resources that can supplement traditional appropriations to Federal recreation-providing agencies. The overviews are followed by detailed explanations, examples of uses of each tool at Federal sites, strategies for securing additional financial resources and staffing, links to Web sites, and other sources of information on the tools, along with contacts for further information and advice. The highlighted tools include the following:

Transportation-Related Tools

Scenic Byways
Recreational Trails Program
Transportation Enhancements
Intelligent Transportation Systems
Cooperation with Department of Defense and National Guard Units

Wildlife and Fisheries Programs

Sportfish Restoration Account (Wallop-Breaux Fund)
Federal Aid for Wildlife Restoration (Pittman-Robertson)

Volunteers, Fees, and Partner Receipts

National Recreation Fee Demonstration Program
Volunteers
Funding Through Congressionally Chartered and Federally Aided National Foundations
Friendraising: Use of National and Local Foundations Judicial Sentencing of Non-Violent Offenders and Use of Fines and Penalties
State OHV Programs (Including Winter Parking Permits)
Challenge Cost-Share Agreements for Recreation and Wildlife
Private Investments in Recreation Facilities
Shared-Use Facilities

Recreation and Conservation Programs

Land and Water Conservation Fund
Rivers, Trails, and Conservation Assistance Program
Land Exchanges and Sales

Copies of the *Toolbox for the Great Outdoors* can be ordered from the American Recreation Coalition at (202) 682-9530 or through its Web site <www.funoutdoors.com>.

Reclamation Recreation Management Act of 1992, Title 28 and Potential Managing Partners

The Reclamation Recreation Management Act of 1992 is an amendment to the Federal Project Recreation Act of 1965, P.L. 89-72, which provides up to 50 percent Federal cost sharing for the planning, construction, and O&M of recreation facilities with non-Federal public entities. It also provides 75 percent Federal cost sharing with non-Federal partners for fish and wildlife enhancement and up to 50 percent of the O&M of such facilities. Non-Federal public entities that have agreed to manage developed facilities and lands at Reclamation projects are to work with local Reclamation offices to identify proposed projects for funding. Congressional funds may be appropriated annually and distributed for selected sites.

Section 7(c) of P.L. 89-72 also gives Reclamation clear authority to contract with other Federal agencies to manage Reclamation lands. However, the question is whether or not the other agencies have the inherent authority to do what Reclamation might ask them to do on Reclamation lands. See “Legislative Constraints” for the constraints placed upon another Federal agency managing Reclamation lands.

As stated previously, P.L. 89-72 provides Reclamation with opportunities to transfer management of recreation resources to a non-Federal government entity or another Federal agency. Through P.L. 89-72, as amended, Reclamation is encouraged to seek State and local partners in managing the recreation resources on its lands. Throughout the 17 Western States, Reclamation has numerous successful partnerships with non-Federal entities. In other instances and pursuant to P.L. 89-72, Reclamation has transferred jurisdiction of its lands to other Federal agencies as national recreation areas, national wildlife refuges, or as U.S. Forest Service lands if the Reclamation project is within or adjacent to a National Forest System. If Reclamation lands are transferred to another Federal agency, all resources, including recreation, are managed using the rules, regulations, and funding sources of that agency. When Reclamation can obtain neither a non-Federal nor Federal partner, Reclamation manages its lands and resources pursuant to existing laws and regulations and specific Reclamation authorities and limitations. Approximately 21 reservoir areas in the 17 Western States are managed directly by Reclamation in the absence of a managing partner. At a time when Federal, State, and local funding for recreation development is decreasing, the demand for outdoor recreation is increasing. The leveraging of funds and shared responsibilities are important if land management agencies wish to meet future demand.

If Reclamation obtains a non-Federal entity as a recreation management partner, both sections 2(a) and 3(b)(1) of P.L. 89-72 provide that features or facilities for recreation, as well as fish and wildlife enhancements, or both, may be provided if the non-Federal entity pays for:

- Up to one-half of the construction costs for recreation (land acquisition, facilities construction, and project modification)
- Up to one-fourth of the construction costs for fish and wildlife enhancement (land acquisition, facilities construction, and project modification)
- Up to one-half of the O&M and replacement costs for recreation or fish and wildlife enhancement facilities or features

Section 2(b) of P.L. 89-72 also provides guidance on how a non-Federal entity could have Reclamation fund and construct most, if not all, the facilities or features, provided that the non-Federal entity agrees to enter into a repayment contract with the United States Government to repay the non-Federal entity's portion of the 50-percent cost-share obligation funded by the United States. The amount of money borrowed from the United States would have to be repaid with interest within 50 years of first use of the facilities and features provided. The source of repayment may be limited to the entrance and user fees or charges collected at the recreation area if the fee schedule is established on a basis to achieve repayment within the 50 years.

Fee Retention

The ability to retain recreation-related fees to offset operation and maintenance expenses is important to consider when managing recreation activities on Federal lands. On December 8, 2004, the Congress passed the Federal Lands Recreation Enhancement Act (P.L. 108-447), which authorizes a variety of Federal land and water management agencies to retain a portion of the fees collected at a specific recreation area for future use at that area. (See **attachment B** for the complete text of P.L. 108-447.) Reclamation is one of the Federal agencies authorized to collect and retain a portion of user fees. In the past, user fees were returned to the Federal treasury and made available the following year for operation and maintenance through congressional appropriations. Historically, congressional appropriations were usually less than the amount of user fees collected at the recreation area. P.L. 108-447 allows Reclamation to charge fees that are commensurate with the benefits and services that are provided to the visitor (i.e., the amount of fees charged are dependent on the types of amenities provided at the site). Additional criteria for charging fees are discussed in the body of the law. If fees are charged pursuant to the provisions of P.L. 108-447, Federal agencies are not allowed to retain more that 80 percent of the user fees to use the following years.

As stated earlier, P.L. 89-72 authorizes Reclamation to enter into recreation management agreements with non-Federal entities, such as State, county, and local governments. This act also authorizes the transfer of project lands or facilities to these agencies with terms and conditions that best promote development and operation of the lands and facilities for recreation purposes in the public interest. P.L. 89-72 states, ". . .entrance and user fees or charges collected at the project by non-Federal interests. . ." may be ". . .used to assist in repayment of costs." In addition to P.L. 89-72, the following congressional legislation also supports retention of user fees by a non-Federal managing partner:

- United States Code (U.S.C.) 16, part 4601-6a states, ". . .any such contract may provide that the contractor. . .deduct a commission to be fixed by the agency head from the amount charged the public for providing such services. . ."
- Land and Water Conservation Fund of September 3, 1964, P.L. 88-578, 78 Stat. 897 states that ". . .provision of law that permits States or political subdivisions to share in the revenues from Federal lands. . .."

Geographic Information System (GIS) Mapping

Although various naturally occurring phenomena and conditions may limit or influence human activity within the study area, adequate mapping can identify areas that have constraints or limitations for future development. GIS mapping can provide a tool to determine if management actions might be compatible with

the existing use of the land. The GIS digital layers created can be stacked and used to generate new layers that answer questions about the suitability of development based on the land capabilities of a geographic area or spatial location.

Management Constraints

When agencies address management changes and other actions, they are constrained by their respective legislative authorities, budgets, personnel, current policies, and environmental limitations. The policies affecting management were discussed in Chapter 2, "Management Framework." The ability of land management agencies to manage environmental and recreational resources will always depend on maintaining sufficient personnel and on the ability of the agencies to obtain adequate funding to operate and maintain facilities and programs, as well as to protect and enhance existing opportunities and resources. The following discussion addresses the constraints associated with the study area.

Legislative Constraints

Project planning or development on Federal land may trigger implementation of and adherence to certain rules, laws, and Executive orders. These include, but are not limited to, those mentioned in chapter 2 as well as the Clean Water Act, Clean Air Act, Americans with Disabilities Act, and the National Environmental Policy Act. These legislative mandates require Federal land management agencies to consider the effects of their management decisions on endangered or threatened species, water quality, Indian trust assets, recreation, fish and wildlife, and cultural resources. For example, if management recommendations involve a Federal action that would cause a site disturbance, a cultural resource inventory would have to be conducted before the action could be implemented.

Federal Agency Constraints

In general, the Property, Commerce, and Tax and Spend for the General Welfare Clauses of the Constitution provide the authority for Reclamation and other Federal agencies to function. This authority, however, is granted to the Congress, not to the Executive branch. Thus, the various agencies function on the basis of delegation of authority from the Congress in the form of statutes. The Reclamation Act of 1902, BLM's Federal Land Policy Management Act of 1976, and the U.S. Forest Service National Forest Management Act of 1976 are examples of acts that delegate congressional authority to the Executive branch. As discussed previously, section 7(c) of P.L. 89-72 clearly delegates Reclamation authority to contract with other Federal agencies to manage Reclamation land; however, the other agency must have congressional authority and the expertise

necessary to perform the responsibilities Reclamation may wish to convey. In addition, the disposition of the fees collected on Reclamation land by another Federal agency would have to be addressed. Certain fees may have to be deposited in Reclamation's treasury account, instead of another Federal agency's account, or deposited in the Reclamation fund as a credit to the project. In either case, the fees collected by another Federal agency would not be available for on-site use or to defer the costs of operation and maintenance.

Environmental Constraints

Limiting factors, such as slopes, soils, wetlands, critical habitat, and the lack of an adequate land base, can constrain future development. Facilities cannot be located on unstable soils, extreme slopes, on or near wetlands and critical habitat areas, or within land areas that do not have a sufficient land base to accommodate such development (e.g., the physical carrying capacity of the land may be exceeded). The existence of any one of the following factors would make an area less suitable for recreation or commercial development:

- Presence of a wetland or riparian vegetation or wildlife habitat
- Presence of certain wildlife species (endangered species/special status species)
- Presence of sensitive habitat for certain wildlife species
- Poor soils for constructing foundations and installing septic systems
- Hazardous geologic conditions, such as a fault zone
- Cultural resources properties

Adequate GIS mapping can identify areas that may constrain or limit future development, as discussed previously. Various naturally occurring phenomena and manmade conditions could limit or influence human activity within the study area. For the purposes of this report, several GIS map layers have been produced. GIS mapping can help identify areas that have constraints or limitations for development.

Carrying Capacity Constraints

Carrying capacity can be described as the ability of a resource to accommodate a user population at a reasonable threshold without the user population adversely affecting the resource. Carrying capacity levels for the study area have not been determined. Carrying capacity can be subdivided into four categories: (1) social, (2) physical, (3) environmental (or ecological), and (4) facility.

Social Carrying Capacity

Social carrying capacity can be described as the effects that resource users have on one another. The number, type, and location of recreation users encountered sometimes affect the recreation experience. The social carrying capacity differs among users and depends on the type of experience sought and the tolerance of the individuals or groups using the resource. For example, a recreationist seeking a wilderness experience will not tolerate the sights and sounds of other recreationists, while a user of an urban environment not only tolerates but expects to encounter other users. Social carrying capacity also depends on the availability, size, use, and management of the resource.

Physical Carrying Capacity

Physical carrying capacity can be described as the area that is available to a recreationist for a specific recreation activity. The challenge is to provide adequate access to the public, while optimizing the number and variety of recreational opportunities within the available land base.

Environmental Carrying Capacity

Environmental (or ecological) carrying capacity can be described as the effects that a level of recreation use will have on resources, such as vegetation, fish, wildlife, soils, water, and air. Activities with high impact, such as OHV use, can adversely affect natural resources. The challenge is to provide an adequate number of facilities and opportunities to meet existing and future demand without adversely affecting the environmental resources.

Facility Carrying Capacity

Facility carrying capacity can be described as the ability of an existing facility to accommodate the current level of recreation use. User conflicts can result if a facility has reached its carrying capacity limits.

Chapter 4
Alternatives

Introduction

This chapter discusses the process Reclamation used to formulate alternatives to the proposed Federal action, describes the alternatives in detail, and provides a summary comparison of the effects of the alternatives on resources and environmental factors within the study area (table 4.1, located at the end of this chapter).

As stated previously, Reclamation management goals and objectives and associated management actions were formulated to respond to issues and concerns raised by the public, agency consultation and coordination, and review of its programs and policies. The proposed management actions are described in detail for each alternative. Chapter 5 contains an analysis of the effects of the alternatives on resources and environmental factors.

Alternative Formulation

The Council on Environmental Quality's (CEQ) regulations implementing NEPA require the consideration and evaluation of a range of reasonable alternatives to a proposed Federal action. The alternatives should meet the purpose of and need for the proposed action while avoiding or minimizing environmental impacts.

The NEPA *alternative formulation* process facilitates the *planning* process by providing a means by which Reclamation, with interested agencies and the public, can formulate alternative management plans in response to identified issues. The basic goal in formulating alternatives is to develop various combinations of land uses and resource management actions that respond to the issues identified during the planning process.

Reclamation developed planning criteria to help formulate and select combinations of land uses and management actions (alternatives) that could be reasonably implemented. Based on the following planning criteria, each action alternative would do the following:

- Meet the public need as expressed during the planning and NEPA compliance process (e.g., during open houses, public meetings, and in correspondence) and meet the goals and objectives formulated in response to the issues and concerns identified

- Comply with applicable Federal, State, and county laws, regulations, and policies, while not interfering with authorized Reclamation project purposes
- Maintain Coachella Valley Water District's ability to operate and maintain the Coachella Canal
- Allow for continued recreation management pursuant to existing agreements with Coachella Valley Recreation and Park District and Riverside County and provide for possible expansion of recreation activities on Coachella Canal Area lands
- Allow compatible uses of Reclamation lands
- Provide for partnership opportunities and shared responsibilities
- Balance user needs, environmental protection, and anticipated funding and personnel limits
- Be achievable within the 10-year life of the resource management plan

Using these planning criteria as a guide, Reclamation developed three action alternatives (i.e., alternatives that prescribe a change in resource management).

In addition to the action alternatives, Reclamation also formulated a No Action Alternative, as required by CEQ regulations implementing NEPA. The No Action Alternative describes the management of the study area if a new RMP were not implemented. Reclamation originally presented a No Action Alternative and three action alternatives to the public for review and comment; however, after public comment and internal review of the alternatives, Reclamation modified the Natural Resources Conservation/Protection with Limited Recreation Development (Alternative D) and selected it as the preferred alternative. The modified Alternative D contains essentially the same elements as in the No Action Alternative (Alternative A), along with many of those in Alternative B.

Reclamation decided to include a preponderance of elements from the No Action Alternative in the preferred alternative because Reclamation must continue to manage the Coachella Canal Area lands for the congressionally authorized primary purposes of the Boulder Canyon Project Act and because the limited land base within the study area does not allow for the maximization of recreation facilities, programs, and opportunities. In addition, actions included in the modified preferred alternative related to the protection and conservation of the natural and cultural resources will not adversely affect Boulder Canyon Project Act purposes and are consistent with other efforts in the Coachella Valley to protect the existing natural resources pursuant to the *Draft Coachella Valley Multiple Species Habitat Conservation Plan/Natural Community Conservation Plan.*

Reclamation formulated the following alternatives:

- No Action Alternative (Alternative A)
- Natural Resources Conservation/Protection Alternative (Alternative B)
- Recreation, Community, and Commercial Development Alternative (Alternative C)
- Modified Natural Resources Conservation/Protection with Limited Recreation Development Alternative (Alternative D)

Alternative Elements and Management Actions

A Reclamation interdisciplinary team developed alternative "elements" that would best respond to identified public and Reclamation issues and concerns. Each alternative is made up of a unique combination of elements and associated management actions. Each alternative would achieve a different desired future condition in the study area, if implemented.

This section first lists management actions common to all alternatives, followed by brief narrative descriptions of the No Action Alternative and the three action alternatives. The elements and management actions common to all alternatives are used on a limited basis to help describe each alternative, but the descriptions focus on the major differences among the alternatives. **Attachment C** provides more detailed descriptions of all the elements and management actions included in each alternative. The alternative elements discussed in attachment C are further grouped under issue categories, as described in Chapter 3, "Planning Issues, Constraints, and Opportunities." Alternative elements considered but eliminated from further consideration are described at the end of this chapter.

Note: Some parcels may be used for more than one purpose. For example, parcels B, C, D, E, F, G, H, I, J, K, L, M, and R may be used as borrow pit areas, open space, and passive types of recreation. At the same time, some of these same parcels also may be used for protective dike purposes (i.e., parcels G, I, J, K, L, M, and R).

Management Actions Common to All Alternatives

Following are those management actions that are common to all alternatives, i.e., these management actions would be implemented under any alternative.

- Continue to operate the lands within the study area for the primary purposes authorized by the Boulder Canyon Project Act

- Continue to manage lands according to Reclamation's Policies and Directives and Standards; Federal laws, rules and regulations; Executive orders; and State and county laws, regulations, and ordinances
- Continue to conduct site-specific NEPA compliance for proposed lands uses to ensure that surface and ground water quality and other natural resources are protected
- Continue to seek non-Federal entities to manage recreation on Coachella Canal Area lands
- Consider soil conditions and other limiting factors and adjacent land uses when placing future facilities on lands within the study area
- Continue to follow existing land use authorization application requirements and procedures
- Continue to allow only those land uses that do not adversely affect Reclamation project features or the delivery of water by CVWD
- Continue to prohibit private, exclusive use of Reclamation lands within the study area
- Continue to prohibit land uses that adversely affect Indian trust assets unless proper mitigation measures are achieved and all environmental clearances are obtained
- Continue to avoid Indian sacred sites and traditional cultural properties when issuing land use authorizations
- Continue to prohibit land uses that adversely affect threatened and endangered or other special status species or critical habitat unless proper mitigation measures are achieved and all environmental clearances have been obtained
- Continue to honor the terms and conditions of the existing agreements with CVWD, CVRPD, and Riverside County, as well as the land use authorizations dealing with, among other things, utility, road, and bridge crossings
- Continue to follow the necessary procedures to authorize land uses on lands where easements were acquired from underlying fee owners
- Continue to follow the updated 2001 Federal Fire Management Policy and the Secretary of the Interior's 2001 policy letter; and develop a fire management plan for all Coachella Canal Area lands

- Continue to consult with the Service pursuant to the Endangered Species Act concerning threatened and endangered species and special status species and associated habitats
- Continue to cooperate with CDFG on special status species and habitat management
- Continue cooperation with adjacent landowners to ensure compatible uses
- Continue to work with the Service and other concerned entities on mutually agreed upon tamarisk removal and mesquite restoration projects
- Continue to cooperate with State, county, and local entities as well as other Federal agencies in matters of mutual concern
- Continue to consult with the California State Preservation Officer under sections 106 and 110 of the National Historic Preservation Act
- Continue to consult with area Indian tribes and the Bureau of Indian Affairs concerning Indian trust assets, Indian sacred sites, and traditional cultural properties
- Continue to promote the Crime Witness Protection Program

Reclamation and CVWD would continue to do the following under all alternatives:

- Use parcels B, C, D, E, F, G, H, I, J, K, L, M, and R for potential borrow pits to be used for Project purposes
- Retain parcel H for a potential water treatment facility for the benefit of the Project and water conservation purposes
- Retain parcels O and P to be used in conjunction with Lake Cahuilla
- Use all canal access roads for operation and maintenance purposes and use parcels G, I, J, K, L, M, Q, R, S, and T for protective dike purposes
- Retain parcel F for Imperial Irrigation District's management of an electrical substation
- Retain parcels E, K, R, and portions of parcels S and T for CVRPD recreation management purposes
- Even though parcel U is not currently within the study area, it should be noted that Reclamation and CVWD will retain a portion of parcel U for Project purposes. Parcel U was identified in the 1993 RMP and is located south of the study area in section 32, T. 7 S., R. 8 E. Since 1993, a portion

of parcel U was returned to BLM through the withdrawal review process. Refer to page 19, "Disposition of Reclamation Lands" for an explanation of the process.

No Action Alternative (Alternative A)

Under the No Action Alternative, Reclamation would continue to manage the lands and resources within the Coachella Canal Area according to Reclamation's Policies and Directives and Standards; Federal laws, regulations and Executive orders; and State and county laws, regulations, and ordinances. In cooperation with CVWD, Reclamation would ensure that the congressionally authorized Boulder Canyon Project Act purposes are protected and that any land uses authorized on Coachella Canal Area lands are compatible with those authorized purposes. In perpetuity, Reclamation would continue to honor its contractual obligations with CVWD in its effort to care for, operate, maintain, and replace Coachella Canal appurtenant water delivery structures, facilities, and protective works.

Parcels within the study area that have been designated as borrow pit, dike, and recreation areas would continue to be designated for such purposes. Reclamation would retain parcel H for a potential water treatment facility for the benefit of the Project and water conservation purposes. Parcels O and P would continue to be used as a Lake Cahuilla recreation complex and terminal reservoir. Imperial Irrigation District would continue to use parcel F for the purpose of maintaining an electrical substation. CVWD would continue to use all canal access roads for the O&M of the Coachella Canal.

Because of legislative limitations as discussed in Chapter 2, "Management Framework," Reclamation would continue to rely on existing non-Federal partners to manage recreation facilities and opportunities on Coachella Canal Area lands. Reclamation would continue to honor its contractual obligations with Riverside County in its effort to operate and maintain an existing recreation complex near Lake Cahuilla and with CVRPD in its effort to operate and maintain three separate areas within the study area for recreation purposes. Reclamation would not establish any social, physical, environmental, or facility carrying capacities within the study area. All other existing land use agreements concerning the use of Reclamation lands for bridges, fences, power and transmission lines, water and power lines, etc. would continue to be honored. Reclamation would continue to seek other non-Federal government entities to assist in managing recreation facilities on Coachella Canal Area lands.

Reclamation would continue to conduct site-specific NEPA compliance for proposed land uses to ensure that surface and ground water quality and other natural resources are protected. Reclamation would continue to allow only those land uses that do not adversely affect Project features or the delivery of water to Coachella Canal water users. Reclamation would continue to prohibit

land uses that adversely affect Indian trust assets and endangered or other special status species and critical habitat unless proper mitigation measures are achieved. Reclamation would continue to avoid Indian sacred sites and traditional cultural properties when issuing
land use authorizations and continue to avoid or minimize developments and land use that could affect suitable windblown sand habitat and associated special status species. Reclamation would continue to manage undisturbed desert habitat as it has in the past and continue to conduct environmental compliance activities that could affect identified habitat. Reclamation also would avoid or minimize developments that would adversely affect suitable Peninsular bighorn sheep, cottonwood willow oases, and desert shrub habitats.

Reclamation would continue to cooperate with BLM and the cities of Indio, La Quinta, Coachella, Thermal, and Mecca on matters of mutual concern; the Service pursuant to ESA; SHPO pursuant to section 106 of the National Historic Preservation Act; CDFG on special status species and habitat management; and area Indian tribes and BIA concerning Indian trust assets, Indian sacred sites, and traditional cultural properties.

Reclamation would continue to work with BLM on identifying Reclamation withdrawn public lands that might be returned to BLM for its management pursuant to section 204 of the Federal Land Policy and Management Act of 1976.

Reclamation would continue the current level of management of unauthorized use of Coachella Canal Area lands by OHV users. No multi-use trails would be constructed within the study area; no public interpretation of the natural resources, wildlife, and Project features would be authorized other than what is currently allowed at Coral Mountain Regional Park; and many of the Coachella Canal Area parcels would continue to be used for undeveloped and passive recreation use.

Reclamation would continue to maintain the current number of signs within the study area, continue the current level of mosquito abatement procedures, continue with the current level of weed control, continue to promote the Crime Witness Protection Program, and continue its current level of trash removal.

Natural Resources Conservation/Protection Alternative (Alternative B)

In addition to many of the management actions included in Alternative A, Reclamation would initiate a land use development strategy that conserves and protects lands from recreation, community, and commercial development. Reclamation would ensure that public use and development are consistent with the goals and objectives of the RMP and other approved planning documents and that land management decisions are made for the benefit of the Project and the general public. Reclamation would continue to manage the lands and resources within the Coachella Canal Area according to Reclamation's Policies and

Directives and Standards; Federal laws, regulations and Executive orders; and State and county laws, regulations, and ordinances. In cooperation with CVWD, Reclamation would ensure that the congressionally authorized Boulder Canyon Project Act purposes are protected and that any land uses authorized on Coachella Canal Area lands are compatible with those authorized purposes. In perpetuity, Reclamation would continue to honor its contractual obligations with CVWD in its effort to care for, operate, maintain, and replace Coachella Canal appurtenant water delivery structures, facilities, and protective works.

Reclamation would conduct periodic land management reviews and other monitoring efforts to ensure that Coachella Canal Area lands are being used pursuant to existing agreements and land use authorizations and to assist in identifying user conflicts and investigate corrective measures to prevent further conflicts from occurring. Reclamation would implement the management actions in the RMP within a 10-year planning period.

Reclamation would limit future land use authorizations and agreements to those that benefit natural and cultural resources in the study area and phase out land uses that may adversely affect natural resources.

Parcels within the study area that have been designated as borrow pits, dikes, and recreation areas would continue to be designated for such purposes. Reclamation would retain parcel H for a potential water treatment facility for the benefit of the Project and water conservation purposes.

Parcels O and P would continue to be used as a Lake Cahuilla recreation complex and terminal reservoir. Imperial Irrigation District would continue to use parcel F for the purpose of maintaining an electrical substation. CVWD would continue to use all canal access roads for the O&M of the Coachella Canal.

Reclamation would initiate a comprehensive weed control program and rehabilitate damaged and degraded habitat, including unauthorized OHV use areas and other areas of past intense use. OHV use would be eliminated, except for emergency situations, and the public would be limited to using existing public roads. If necessary, Reclamation would work with other entities to install fencing and barriers to prevent future use. Reclamation would work with others to install proper fencing to protect the health and safety of the public and Project features and structures.

Reclamation would continue to cooperate with BLM and the cities of Indio, La Quinta, Coachella, Thermal, and Mecca on matters of mutual concern; the Service pursuant to ESA; SHPO pursuant to section 106 of the National Historic Preservation Act; CDFG on special status species and habitat management; and area Indian tribes and BIA concerning Indian trust assets, Indian sacred sites, and traditional cultural properties.

Reclamation would continue to work with BLM on identifying Reclamation withdrawn public lands that might be returned to BLM for its management pursuant to section 204 of the Federal Land Policy and Management Act of 1976.

In consultation with the California SHPO, Reclamation would assess the adequacy of existing heritage resource inventories and conduct intensive surveys in areas not adequately covered. Reclamation would develop a systematic process for site and local monitoring of cultural resource sites and would implement systematic reporting of damages. Until systematic investigations and evaluations are completed, Reclamation would conduct site-specific investigations to determine if cultural sites eligible for the *National Register of Historic Places* (Register) are present in locations where developments, terrestrial habitat restoration or improvements, or focused public use would occur.

Under this alternative, Reclamation would inventory all sand habitat types to ascertain presence or absence, habitat suitability for special status species, and restoration potential and avoid or minimize developments that could affect suitable habitat. Reclamation would conduct long-term monitoring of identified suitable windblown sand habitat. As necessary, Reclamation would provide fencing to protect suitable habitat for special status species, develop a restoration plan in cooperation with other entities, and mitigate and compensate for impacts of development activity on suitable and occupied sand habitat.

Reclamation would avoid impacts to undisturbed desert shrub habitat and also desert wash and other habitats that provide linkages and biological corridors. Peninsular bighorn habitat and an appropriate disturbance buffer would be protected from development. Reclamation would inventory all cottonwood willow habitat to determine the presence or absence of suitable habitat for special status species, evaluate sites to determine if they have restoration potential, and conduct long-term monitoring of identified suitable habitat. In cooperation with other entities, Reclamation would increase efforts to protect all suitable habitats from OHV use and other ground-disturbing activities.

Reclamation would continue to honor existing agreements and land use authorizations, such as those with CVRPD and Riverside County, for the management of areas that are being used for recreation purposes. Reclamation would not seek additional recreation partners for expansion of recreation facilities and opportunities within the study area. Reclamation would establish carrying capacities and use GIS mapping to assist in minimizing natural resource degradation in the study area. No additional recreation development planning would be initiated, and no multi-use trails would be constructed. Reclamation would implement a limited interpretive program to better educate the public about the value of resource protection and conservation. Reclamation would encourage non-Federal partners to expand interpretive information services to the public and provide printed and Internet materials that are bilingual, as needed. The parcels designated for

developed recreation purposes and for general open space[1] and passive recreation[2] under Alternative A would continue to be used for those purposes.

Reclamation would increase its efforts to work with BLM in controlling unauthorized OHV use on lands with shared boundaries and work with CDGF to develop and implement inventory, monitoring, and protection plans for special status species and habitats. Under this alternative, Reclamation also would continue to work with other entities, such as BLM, the Service, BIA, SHPO, and CDGF and surrounding city governments, on matters of mutual concern.

Reclamation would inventory signing needs and, as needed, post bilingual signs with rules and regulations regarding the use of Reclamation lands and, as needed, post bilingual signs at areas that have been closed to OHV use. Reclamation would increase its efforts to enforce rules and regulations and promote proactive law enforcement of unauthorized uses.

Reclamation would cooperate with the Coachella Valley Mosquito and Vector Control District in its effort to reduce or eliminate conditions conducive for mosquito breeding; increase efforts to remove existing trash from the study area; and increase efforts to keep the study area free of trash through signing and strict enforcement.

Recreation, Community, and Commercial Development (Alternative C)

As well as many of the management actions included in Alternative A and some of the management actions included in Alternative B, Alternative C focuses on a land use planning strategy that maximizes recreational opportunities afforded by study area resources. Reclamation would ensure that public use and development are consistent with the goals and objectives of the RMP and other approved planning documents and that land management decisions are made for the benefit of the Project and the general public.

Reclamation would continue to manage the lands and resources within the Coachella Canal Area according to Reclamation's Policies and Directives and Standards; Federal laws, regulations, and Executive orders; and State and county laws, regulations, and ordinances. In cooperation with CVWD, Reclamation would ensure that the congressionally authorized Boulder Canyon Project Act

[1] Open space is defined as a parcel of land that has public value because the land offers important opportunities for recreation. Open space may also have value as a visual amenity to the landscape or backdrop of an outdoor natural setting.

[2] Passive recreation is defined as recreational opportunities that occur in a natural setting that require minimal development or facilities. The importance of the environment or setting for the activities is greater than in developed recreation settings. Examples of passive recreation activities include walking, bicycling, horseback riding, bird watching, and photography.

purposes are protected and that any land uses authorized on Coachella Canal Area lands are compatible with those authorized purposes. In perpetuity, Reclamation would continue to honor its contractual obligations with CVWD in its effort to care for and operate, maintain, and replace Coachella Canal appurtenant water delivery structures, facilities, and protective works.

Reclamation would work with CVWD in its effort to favor land use authorizations that maximize the development of study area lands for recreation, community, and commercial development.

The cultural resources actions included in Alternative B would be implemented under Alternative C, except Reclamation would develop a comprehensive public archeology interpretive program within the study area to enhance visitor experience and implement a program to interpret the heritage resources. The management actions included in Alternative B that are associated with windblown sand habitat, undisturbed desert shrub habitat, desert wash habitat, cottonwood and willow oases, and Peninsular bighorn sheep habitat would be implemented under Alternative C, except that impacts to habitats from potential ground disturbing activities could be minimized or mitigated rather than avoided; however, the first priority would be to avoid critical habitat as opposed to mitigating potential adverse impacts.

Reclamation would provide private parties (concessionaires) the opportunity to supply recreation-related goods and services to the public on Coachella Canal Area lands. Reclamation would work with CVRPD, Riverside County, and other potential recreation partners to expand recreation opportunities within the study area. Potential recreation partners include other State and county as well as local city government entities. Reclamation would require non-Federal partners to prepare site-specific recreation master plans prior to any comprehensive facility development. Carrying capacities also would be determined prior to any development.

Reclamation would expand efforts to seek trail partnerships with local government entities and local trail interest groups to help identify alternatives and local needs and expectations to maximize multi-use trail development within the study area. In cooperation with a single government entity or a variety of entities, Reclamation would authorize construction of non-motorized, multi-use trails throughout the study area. Strict trail development and design criteria would be used to ensure that trails and trail users do not adversely affect natural resources, wildlife, critical habitat, or CVWD project purposes. Portions of trails would be paved or hardened to provide easy access for all users, including those with disabilities. A comprehensive trail plan would be developed that takes into consideration existing and planned trails within the Coachella Valley.

In cooperation with non-Federal partners, Reclamation would prepare a comprehensive interpretative master plan that would result in providing interpretive information describing the unique natural resources and the Project and its relationship with CVWD.

Essentially, Reclamation would allow recreation facilities to be developed, operated, and maintained on parcels A, B, C, D, K, E, and F as long as such development(s) would not interfere with Boulder Canyon Project Act purposes or the natural and cultural resources within the study area. Parcels that have existing recreation development would be retained for continued recreation purposes (i.e., those areas currently managed by Riverside County and CVRPD). Reclamation would authorize expansion of existing facilities for areas currently managed by CVRPD and Riverside County. For these areas and other areas within the study area, a strict process would be followed before any recreation development was authorized.

A comprehensive sign plan would be prepared for the study area. Reclamation would inventory signing needs and, as needed, post bilingual signs at visitor contact areas such as OHV use areas. Signs would include information such as the rules and regulations governing the proper use of Reclamation lands and emergency contact numbers.

Reclamation would work with BLM to investigate the possibility of establishing OHV use areas on lands with shared boundaries and cooperate on law enforcement efforts dealing with areas not authorized for OHV use. Reclamation would prepare a comprehensive OHV plan and officially open certain study area lands for OHV use. Before opening any lands for OHV use, a non-Federal government entity would have to enter into an agreement with Reclamation for O&M of designated OHV areas, including a commitment to provide an appropriate level of law enforcement. Reclamation would prepare a travel management plan designating OHV trails and roads to be used by OHV users. To prevent unauthorized OHV use in other areas, fencing and barriers would be installed.

Reclamation would continue to cooperate with BLM and the cities of Indio, La Quinta, Coachella, Thermal, and Mecca on matters of mutual concern; the Service pursuant to ESA; SHPO pursuant to section 106 of the National Historic Preservation Act; CDFG on special status species and habitat management; and area Indian tribes and BIA concerning Indian trust assets, Indian sacred sites, and traditional cultural properties.

Reclamation would continue to work with BLM on identifying Reclamation withdrawn public lands that might be returned to BLM for its management pursuant to section 204 of the Federal Land Policy and Management Act of 1976.

Parcels within the study area that have been designated as borrow pits, dikes, and recreation areas would continue to be designated for such purposes. Reclamation

would retain parcel H for a potential water treatment facility for the benefit of the Project and water conservation purposes. Parcels O and P would continue to be used as a Lake Cahuilla recreation complex and terminal reservoir. Imperial Irrigation District would continue to use parcel F for the purpose of maintaining an electrical substation. CVWD would continue to use all canal access roads for the O&M of the Coachella Canal.

Modified Natural Resources Conservation/Protection with Limited Development (Alternative D, Preferred Alternative)

As well as many of the management actions included in Alternative A and most of the management actions included in Alternative B, Alternative D focuses on a land use planning strategy that allows for limited recreational opportunities afforded by study area resources. Reclamation would ensure that public use and development are consistent with the goals and objectives of the RMP and other approved planning documents and that land management decisions are made for the benefit of the Project and the general public.

Reclamation would continue to manage the lands and resources within the Coachella Canal Area according to Reclamation's Policies and Directives and Standards; Federal laws, regulations and Executive orders; and State and county laws, regulations, and ordinances. In cooperation with CVWD, Reclamation would ensure that the congressionally authorized Boulder Canyon Project Act purposes are protected and that any land uses authorized on Coachella Canal Area lands are compatible with those authorized purposes. In perpetuity, Reclamation would continue to honor its contractual obligations with CVWD in its effort to care for, operate, maintain, and replace Coachella Canal appurtenant water delivery structures, facilities, and protective works.

Reclamation would continue to honor existing agreements with CCVD, CVRPD, and Riverside County and phase out land uses that are not compatible with Project purposes. Reclamation would issue future land use authorizations that allow for limited recreation development and that do not adversely affect natural resources and Project purposes. Reclamation would conduct periodic land management reviews and other monitoring efforts to ensure study area lands are managed pursuant to existing agreements and land use authorizations. User conflicts would be identified, and corrective measures would be initiated to prevent further conflicts.

Reclamation would work with CVRPD in developing additional facilities within the three areas currently under lease with Reclamation and with Riverside County to improve recreation facilities within the study area currently under lease with Reclamation (i.e., Lake Cahuilla recreation area). In addition, Reclamation would work with Riverside County in authorizing expansion of facilities managed by the county. Depending on land status, Reclamation would assess the need to work with existing and with other qualified recreation partners to expand a limited

number of recreation opportunities on all parcels of land within the study area if appropriate demand exists. When planning for recreation development, Reclamation partners would follow up-to-date design standards and criteria. Reclamation would consider proposals from qualified recreation partners to provide for passive types of recreation opportunities and to provide assistance in enforcing unauthorized OHV use. Appropriate recreation management agreements would be entered into with any new non-Federal entities.

Reclamation's recreation partners would provide appropriate information related to social, physical, environmental, or facility capacities for proposed developments. Existing and potential qualified recreation partners would prepare and submit appropriate planning documents to Reclamation prior to any facility development. Reclamation would ensure that visitor health and safety is the main focus during facility planning.

Reclamation would encourage existing and potential recreation partners to provide interpretation of the natural resources, wildlife, and Project features to better educate the public. Reclamation and its partners would provide an appropriate level of interpretation as required to fulfill mitigation measures associated with Project and recreation facility development.

Reclamation would eliminate all OHV use except for emergency situations. As funding becomes available, Reclamation would close and rehabilitate OHV roads and unauthorized use areas. The public would be restricted to existing public roads, and needed fencing and barriers would be installed to prevent future OHV use.

Reclamation would expand efforts to seek trail partnerships with local government entities and local trail interest groups to help identify alternatives and local needs and expectations to maximize multi-use trail development within the study area. In cooperation with a single government entity or a variety of entities, Reclamation would authorize construction of non-motorized, multi-use trails throughout the study area. Strict trail development and design criteria would be used to ensure that trails and trail users do not adversely affect natural resources, wildlife, critical habitat, or CVWD project purposes. Portions of trails would be designed to accommodate a variety of uses, such as hiking, biking, and horseback riding.

Parcels within the study area that have been designated as borrow pits, dikes, and recreation areas would continue to be designated for such purposes. Reclamation would retain parcel H for a potential water treatment facility for the benefit of the Project and water conservation purposes. Parcels O and P would continue to be used as a Lake Cahuilla recreation complex and terminal reservoir. Imperial Irrigation District would continue to use parcel F for maintaining an electrical substation. CVWD would continue to use all canal access roads for the O&M of the Coachella Canal. Acceptable stabilization

techniques would be used for active borrow pits to ensure that offsite impacts are avoided. Unused and abandoned borrow pits would be reclaimed after a reasonable period of non-use.

Reclamation would continue to cooperate with BLM and the cities of Indio, La Quinta, Coachella, Thermal, and Mecca on matters of mutual concern; the Service pursuant to ESA; SHPO pursuant to section 106 of the National Historic Preservation Act; CDFG on special status species and habitat management; and with area Indian tribes and BIA concerning Indian trust assets, Indian sacred sites, and traditional cultural properties.

Under this alternative, Reclamation would complete all the cultural resource actions included in Alternative A, except complete site-specific investigations, as needed, to enable implementation of the RMP management actions and restoration efforts when compatible with Project needs and purposes. On a case-by-case basis, or as required by a mitigation requirement, Reclamation would implement interpretation at sites for public interest and education.

All elements and management actions related to conservation and protection natural resources included in Alternative B would be implemented under this alternative. The elements and management actions include initiating a comprehensive weed control program and rehabilitating damaged and degraded habitat, including unauthorized OHV use areas and other small areas of past intense use. Elements and actions also include (1) inventorying all sand habitat types to ascertain their presence or absence, habitat suitability for special status species, and restoration potential and (2) avoiding or minimizing impacts that could affect suitable habitat. Reclamation would conduct long-term monitoring of identified suitable windblown sand habitat. As necessary, Reclamation would provide fencing to protect suitable habitat for special status species, develop a restoration plan in cooperation with other entities, and mitigate and compensate for impacts of development activity on suitable and occupied sand habitat.

Reclamation would avoid impacts to undisturbed desert shrub habitat and also desert wash and other habitats that provide linkages and biological corridors. Peninsular bighorn habitat and an appropriate disturbance buffer would be protected from development. Reclamation would inventory all cottonwood willow habitat to determine the presence or absence of suitable habitat for special status species, evaluate if sites may have restoration potential, and conduct long-term monitoring of identified suitable habitat. In cooperation with other entities, Reclamation would increase efforts to protect all suitable habitats from OHV use and other ground-disturbing activities.

Reclamation would continue to work with BLM on identifying Reclamation withdrawn public lands that might be returned to BLM for its management pursuant to section 204 of the Federal Land Policy and Management Act of 1976.

Reclamation would work with BLM to address legal public access across Reclamation lands so that access to recreation trails and public use areas managed by BLM is not hindered.

Reclamation would coordinate mosquito abatement activities within the study area with the Coachella Valley Mosquito and Vector Control District, increase efforts to control unauthorized trash dumping, promote the Crime Witness Protection Program, and increase efforts to enforce rules and regulations to discourage unauthorized use within the study area.

Reclamation would encourage existing and future partners to use a variety of media to communicate with the public, including printed materials, maps, photographs, brochures, and Web sites and encourage partners to provide additional programs for public enjoyment (e.g., wildlife observation and interpretative programs).

Alternative Elements Considered but Eliminated From Further Consideration

Members of the public and other agencies made several suggestions and comments about elements that should be included in the RMP. Reclamation considered these suggestions and comments but eliminated them from further consideration for the following reason(s).

Mention Dos Palmas Area of Critical Environmental Concern and its related resource values in the RMP: Although the Dos Palmas ACEC is adjacent to the Coachella Canal, it is located near the Salton Sea, considerably south and east of the Coachella Canal Area study area. Reclamation did not include the ACEC as an alternative element or prescribe any management actions related to this area because it is not under its jurisdiction. Reclamation did, however, acknowledge the Dos Palmas ACEC area in Chapter 2, "Management Framework," as it relates to BLM's management of an area that lies outside the Coachella Canal Area.

Mention the Bradshaw Trail and analyze the impacts that management actions for the Coachella Canal Area may have on access to the trail by the general public: The Bradshaw Trail is approximately 70 miles long and lies primarily on BLM land. The trail segment runs from the Salton Sea Recreation Area east to Wiley's Well Campground near the Mule Mountains. Access to the trail is not through Coachella Canal Area lands within the study area. It lies considerably south of the study area, near the Salton Sea and the Dos Palmas ACEC described previously; therefore, Reclamation did not analyze impacts of proposed RMP actions on access to the Bradshaw Trail.

Address the possibility of using parcel D as part of the development of the "College of the Desert" campus: Because Reclamation has not received any formal request for such use, this element is not specifically addressed in any of the alternatives.

Mecca Hills, Orocopia Mountains, and Santa Rosa Mountain Wilderness Areas should be referenced on all RMP maps: Although Joshua Tree Wilderness is shown on the study area maps, these other wilderness areas are not close enough to the study area to be included in the maps. These wilderness areas are managed by other agencies and not under the jurisdiction of Reclamation; therefore, Reclamation felt there was no immediate need to change the scale of its maps to show areas managed by other entities.

There is concern that management prescriptions affecting existing routes within the study area may cause an impact to the maintenance of the big game guzzler located in the northwest quadrant of Township 7 South, Range 9 East: Reclamation believes that the location provided in the comment letter referring to the northwest quadrant of Township 7 South, Range 9 East may be incorrect because the city of Mecca is in the northwest quadrant, and the Orocopia Mountains are, at the very least, 10 miles to the east of Mecca (i.e., east of Box Canyon Road). Reclamation believes this is outside the study area boundary and not affected by any decisions reached in this RMP. For this reason, Reclamation did not specifically address this issue in its analysis. Reclamation did, however, formulate a management action in the preferred alternative that states that "Reclamation will initiate efforts to cooperate with BLM on identifying legal access across Reclamation lands or interest in lands so that access to recreational trails and public use areas on BLM lands east of the study area are not hindered."

Attention appears to focus on developed recreation on the west side of the study area and does not translate well to the eastern side of the study area where there are no developed camping facilities: Reclamation did not specifically address the disparity between camping facilities on the western side and eastern side (i.e., near the cities of Mecca and Coachella etc.) of the study area. Reclamation does not have specific authority to develop and maintain recreation facilities on Coachella Canal Area lands. See Chapter 3, "Planning Issues, Opportunities, and Constraints," which discusses Reclamation's limitations associated with recreation development. Chapter 3 also discusses the opportunities that are available to Reclamation in providing recreation in cooperation with other entities. In the case of Coachella Canal Area lands, Reclamation would rely on partnerships with non-Federal government entities to provide recreation on its lands. The preferred RMP alternative identifies the parcels on the eastern side of the study area that can be used for open space, passive recreation, and developed recreation. If a non-Federal government entity were to submit a proposal for development of recreation opportunities on the eastern side of the study area,

Reclamation would review that proposal based on qualifications of the entity, public need, and potential impact to the Boulder Canyon Project Act and natural and cultural resources in the area.

Table 4.1 – Coachella Canal Area RMP/EA summary of effects of alternatives on resources and environmental factors

Resource/Factor	No Action (Alternative A)	Natural Resources Conservation/ Protection (Alternative B)	Recreation, Community, and Commercial Development (Alternative C)	Modified Natural Resources Conservation/Protection with Limited Development (Alternative D) (Preferred)
Surface Water and Ground Water	Same as under current conditions.	About the same or slightly better than under No Action Alternative	Moderately adverse effects on quantity and quality	Overall, no effect.
Land Use	Same as under current conditions.	Fewest adverse environmental impacts.	About the same as under No Action.	Fewer adverse environmental impacts than under Alternatives A or C but potentially greater environmental impacts than under Alternative B.
Vegetation and Wildlife	Probable continued degradation of vegetation and habitat from unregulated public use.	Greatest benefits to vegetation and wildlife. Probable improvement of degraded vegetation and wildlife habitat from restoration.	Greatest adverse effects to vegetation and wildlife from emphasis on developments, OHV use, and recreational development.	Moderate adverse effects to vegetation and wildlife from recreational developments. Probable improvement of degraded vegetation and wildlife habitat from restoration.
Special Status Species	Same as under current conditions. Probable continued degradation of special status species habitat from unregulated public use	Greatest benefits for special status species. Probable improvement of degraded special status species habitat from restoration	Greatest adverse effects to special status species from emphasis on development, OHV use, and recreational developments	Moderate adverse effects to special status species from recreational developments Probable improvement of degraded special status species habitat from restoration
Recreation	Same as under current conditions	Public demand for open spaces, natural areas for outdoor recreation, and community recreation areas would be unmet.	Public demand for open spaces, natural areas for outdoor recreation and community recreation areas would be better met; greater user conflicts would occur than under Alternative A or B; diminished recreation experience for those seeking solitude.	Public need and demand for urban recreation would be somewhat unmet; fewer user conflicts would occur than under Alternative C; and better recreation experience for those seeking solitude than under Alternative C.
Regional Economy	Same as under current conditions.	Little to no effect.	Little to no effect.	Little to no effect.

Table 4.1 – Coachella Canal Area RMP/EA summary of effects of alternatives on resources and environmental factors (continued)

Resource/Factor	No Action (Alternative A)	Natural Resources Conservation/ Protection (Alternative B)	Recreation, Community, and Commercial Development (Alternative C)	Modified Natural Resources Conservation/Protection with Limited Development (Alternative D) (Preferred)
Transportation	Continued conflicting land uses and exceedence of carrying capacities.	Public demand and need for access would be minimally met.	Public demand and need for access would be fully met.	Same as Alternative B.
Soils	Same wind erosion of soils as under current conditions.	Less wind erosion of soils than under No Action Alternative.	Moderately greater wind erosion of soils than under No Action Alternative.	Overall, less wind erosion of soils than under No Action Alternative.
Air Quality	Same as under current conditions	Maximum benefits to air quality.	Greatest adverse effects to air quality.	About the same as under No Action Alternative.
Visual Quality	Same as under current conditions.	Best protection of visual resources.	Greatest adverse effects on visual resources.	Better protection of visual resources than under Alternatives A or C but not as great as under Alternative B.
Cultural Resources	Same as under current conditions.	Same as under No Action Alternative.	Greater deterioration of cultural resources than under No Action Alternative.	Same as under No Action Alternative, with additional emphasis on the careful avoidance, protection, and mitigation of recorded and undiscovered cultural resources in parcels J, K, and O-T.
Indian Trust Assets	No effect.	No effect.	No effect.	No effect.
Environmental Justice	Same as under current conditions.	Same as No Action Alternative.	Slight benefit because of limited short-term employment for minority or low-income individuals.	About the same as Alternative C.

Chapter 5
Affected Environment and Environmental Consequences

Introduction

This chapter describes the existing physical and biological resources and environmental factors in the study area (affected environment) and the effects of the alternatives on certain resources and environmental factors (environmental consequences). Resources include surface water and ground water, vegetation and wildlife, special status species, recreation, soils, air quality, visual quality, cultural resources, and Indian trust assets. Environmental factors include climate, topography, geology, land use, regional economy, transportation, and environmental justice. All resources and factors within the study area are described in the affected environment section; however, only those resources and factors that could be affected by the alternatives are analyzed in the environmental consequences section.

The No Action Alternative, which provides the basis of comparison for the effects of the three action alternatives, describes conditions in the future if no action were implemented. The analysis of the potential effects of the alternatives on resources is based on the professional judgment and experience of Reclamation staff specialists, their discussions with other experts and professionals, literature review, and field reviews of the study area. The depth of the analyses corresponds to the scope and magnitude of the potential effects of the alternatives. If an alternative could adversely affect a resource, appropriate mitigation measures are presented.

The goal of this chapter is to quantify, to the extent possible, the effects of each alternative on the resources and environmental factors. However, if quantitative estimates were not possible, qualitative estimates are provided.

Climate

The Coachella Valley is one of the hottest, driest areas in the United States. The San Bernardino, San Jacinto, and Santa Rosa Mountains isolate the Coachella Valley from the moist, cool ocean air masses from the west. As a result, the region is characterized by a subtropical desert climate with long, hot, dry summers and relatively short, mild winters. Mean annual rainfall ranges from 4 to 6 inches per year and mostly occurs as gentle widespread rains from

November through March. Localized thunderstorms from August through October can produce short-duration, high-intensity rainfall that may result in flash flooding. Temperature extremes range between 28 to 126 degrees Fahrenheit (°F). The humidity ranges from about 34 percent in the summer to about 48 percent in the winter (National Oceanic and Atmospheric Administration [NOAA], 2004).

Gusty winds can produce severe and widespread dust storms. Summer thunderstorms often produce high wind gusts. The winds pick up large amounts of natural desert soils that can be transported over large distances. The prevailing wind direction, as measured at the NOAA climatological monitoring station at Thermal Airport, is predominantly from the northwest. The annual mean wind speed is 8.1 miles per hour. Conditions are calm only about 2 percent of the time.

None of the alternatives would affect climate.

Topography

The study area is located in the northern end of a trough that includes the Imperial, Mexicali, and Coachella Valleys. The Imperial Valley, located on the border of California and Mexico, also known as the Salton Sink, the Salton Basin, and the Salton Trough, is actually an extension of the Gulf of California, although today it is cut off from the gulf by the Colorado River's delta fan. The area south of the border is known as the Mexicali Valley. The Coachella Valley is located on the north side of the Salton Sea in a lowland that is part of the Basin and Range province.

The well-known San Andreas Fault cuts diagonally across the region and forms the mountains on the northeast side of the Salton Basin. The San Jacinto and Santa Rosa Mountains are located to the west, the San Bernardino Mountains are located to the north, and the Little San Bernardino Mountains and Chocolate Mountains are located to the northeast and to the southeast side of the Coachella Valley.

In prehistoric times, the Colorado River was much larger than it is today, and it carried millions of tons of silt and sediment into the Gulf of California. During heavy spring runoff, the river flooded its delta and siltation clogged old channels, forcing the river to find new routes to the gulf. Each time the river broke through natural levees, water drained into the Mexicali Valley and slowly filled the basin, forming ancient Lake Cahuilla. Lake Cahuilla was created and disappeared as many as five times during its last 2,500 years, each occurrence lasting from 100 to 700 years. The lake measured 115 miles long by 34 miles, was 315 feet deep, and stretched from north of the location of the modern-day city of Indio, California, south into Mexico. Occasionally, the Colorado River water was diverted, and the entire flow was captured by the Salton Basin. Carbon-14 dating indicates the last

lake period occurred about 500 to 700 years ago. After the Colorado River ceased to flow into the Salton Basin and began to flow into the Gulf of California, Lake Cahuilla evaporated. When the first Spaniards entered the region in about 1539, the floor of the Salton Trough was a dry salt flat. The original Salton Sea was formed during the period 1905–07 by floodflow of the Colorado River. It currently serves as a drainage reservoir for irrigation return water and storm water.

Evidence of the prehistoric shoreline of Lake Cahuilla appears in many parts of the Salton Basin. Prominent beach terraces developed because of wave action and nearby shore currents. These terraces appear as long, steep-sided, flat ridges that are littered with water-worn pebbles and cobbles. Portions of the ancient shoreline are visible as dark stains at the base of the Santa Rosa Mountains south of Lake Cahuilla County Park.

None of the alternatives would affect the topography.

Geology

Geologic deposits in the study area are composed of unconsolidated deposits, partly consolidated deposits, and consolidated rocks (surrounding mountains) (**map 5.1, Coachella Canal Area Geology**). The unconsolidated deposits are the main water-bearing aquifers. The partly consolidated deposits that formed the Indio, Mecca, and Garnett Hills, of late Pleistocene and Holocene age, have low permeability and poor aquifer characteristics. The consolidated rocks are undifferentiated granitic intrusive and metamorphic rocks of Precambrian and Tertiary age that contain little or no water.

The Coachella Valley is in an area that lies along a section of the San Andreas Fault, an area of high seismic activity. On April 22, 1992, an earthquake with a magnitude of 6.1 occurred near the community of Desert Hot Springs. Minor damage to structures in the community was reported, but there was no damage to water facilities in the area. On June 28, 1992, another earthquake with a magnitude of 7.4 occurred (was centered) near the community of Yucca Valley, approximately 17 miles northeast of Palm Springs. The Coachella Valley Water District reported that this earthquake caused approximately 20 leaks in underground concrete lateral pipes that temporarily affected about 8,000 acres of irrigated land.

None of the alternatives would affect geology.

Surface Water and Ground Water

Surface water in the study area is limited to those periods of floodflows that do not directly affect the management of study area lands. Ground water is pumped and used for irrigation within the Coachella Valley. Ground water supplies currently are overdrawn, and this condition is expected to continue in the near future. Ground water recharge is required by the California Department of Water Resources.

Affected Environment

Surface Water

The principal stream in the Coachella Valley is the Whitewater River, which originates on the slopes of Mount San Gorgonio and flows southeast into the Salton Sea. The river serves as a path to drain both natural surface water and irrigation water in the lower Coachella Valley.

The principal tributaries of the Whitewater River are the San Gorgonio River and the Snow, Chino Canyon, Tahquitz, Palm Canyon, Deep Canyon, Mission, Big Morongo, and Little Morongo Creeks. Some of the larger tributaries are perennial streams in the mountains, but quickly percolate into the ground water supply upon reaching the highly pervious alluvium of the Coachella Valley.

The United States Geological Survey (USGS) has gauges on the Whitewater River in California at Windy Point; Snow Creek near White Water; Chino Canyon Creek near Palm Springs; Deep Canyon Creek near Palm Desert; Whitewater River at Indio; Whitewater River near Mecca; Mission Creek near Desert Hot Springs; Tahquitz Creek near Palm Springs; and Andreas Creek near Palm Springs.

Normally, surface discharges of the streams flowing in the Coachella Valley infiltrate into the alluvium and become part of the ground water supply. Only during periods of floodflow does surface runoff reach the Salton Sea.

There is the potential for high surface runoff and flash flooding from localized storms, which may occur any time during the year; however, storms are more frequent during the late summer months. To protect the Coachella Canal and adjacent lands from the damaging effects of surface runoff, a series of dikes were constructed in high risk areas. These dikes intercept the runoff, pond the water, and allow it to stand until it either evaporates or infiltrates into the ground water supply.

Surface Water Quality

Surface water flow in the study area is limited to the Coachella Canal channel and the Whitewater River storm water channel. Because the canal is concrete lined, seepage losses are insignificant. No wetlands are currently known to exist on Reclamation lands. A minor portion of the floodflows is recharged to the aquifer system in the Coachella Valley area.

Ground Water

The hydrogeology of the Coachella Valley is controlled by about 3,280 feet of unconsolidated deposits. The ground water in the alluvium is compartmentalized by several faults that influence ground water flow. Most ground water moves southeast in the Coachella Valley. Ground water flow generally follows the gradient of the land surface but may be affected by pumping depressions and local geology of the non-water-bearing rocks. Ground water is principally stored in the unconsolidated sediment deposits.

The transmissibility of an aquifer is the rate of flow of water in gallons per day through a vertical strip of the aquifer, 1 foot wide, extending the full saturated thickness of the aquifer under a hydraulic gradient of unity. Transmissibility in the Coachella Valley is generally high, and some sites are very permeable. The transmissibility generally ranges from 2,000 gallons per day per foot to 10,000 gallons per day per foot (Mallory et al., 1984). In the Garnet Hill subbasin, transmissibility ranges from 10,000 to 50,000 gallons per day per foot. The maximum transmissibility computed using a pump test was 880,000 gallons per day per foot near the head of the Coachella Canal on the East Mesa.

An estimated 10,000 acre-feet of subsurface flows reach the Salton Sea annually. Storage capacity of the ground water basin is estimated at 7,000,000 acre-feet, with a safe yield of 22,000 acre-feet per year.

Ground water beneath Reclamation lands is a source of water for mitigation related to the Coachella Canal lining project.

Ground Water Discharge and Recharge

The main source of ground water discharge is from wells used to irrigate the cultivated part of the Coachella Valley. Some water is also discharged through numerous small springs and seeps. Runoff from the higher mountain elevation is the main source of natural recharge in the Coachella Valley. Small amounts of precipitation percolate to the ground water. Recharge by underflow from all tributaries is small compared to artificial recharge using imported Colorado River water through a conjunctive use agreement with the Metropolitan Water District (MWD) (MWD Web site <www.mwdh2o.com/mwdh2o/pages/yourwater/supply/conjunctive/cuse01.html>). This conjunctive use agreement

allows MWD to either store water in advance of actual use or substitute the CVWD State Water Project allotments for Colorado River water allocated to MWD.

Artificial Ground Water Recharge From 1936–74, ground water levels declined more than 100 feet in the Palm Springs area. CVWD is currently using water from the Colorado River to help retard this trend of water level decline. Artificial recharge plays an important role in conjunctive use; surface water use is supplemented by ground water use.

The ground water basin of the Upper Coachella Valley contains two subbasins (Mission Creek and Desert Hot Springs) that are geologically suitable for large-scale artificial recharge. The two subbasins are located northwest of the Salton Sea. Ground water storage capacity of the Mission Creek subbasin is estimated to be 2.6 million acre-feet (California Department of Water Resources [CDWR], 1964), with current storage estimated at 1.4 million acre-feet (CVWD, 2000). Ground water storage capacity of the Desert Hot Springs subbasin is estimated to be 4.1 million acre-feet (CDWR, 1964). Recharge rates of 5 feet per day may be feasible for use on spreading grounds if sediment and bacterial clogging can be controlled.

From 1973–88, approximately 1 million acre-feet of imported water was artificially recharged (Levy, 1988). The people in the Coachella Valley are taking advantage of the natural storage capacity of the aquifer to store water during periods of excess for use during drought periods.

Ground Water Quality It is difficult to set numerical objectives for the ground water in the Coachella Valley. The quality of ground water varies greatly with depth of well perforations, current water level, geology, hydrology, and several other factors. About 60 to 70 percent of pumped ground water used for irrigation is consumed by crops.

Ground water in the Mission Creek subbasin ranges from a calcium-magnesium bicarbonate type in the northwest to a sodium chloride-sulfate type in the southeast.

Chemical analyses performed from 1968–74 show that sodium chloride-sulfate type ground water exists throughout the Desert Hot Springs subbasin. High concentrations of dissolved solids occur in the ground water throughout this subbasin, limiting agricultural or domestic use (CVWD, 2000). Ground water temperatures in hot water wells near the city of Desert Hot Springs in the subbasin along the Mission Creek Fault are an average of 118 ºF (CDWR, 1964).

Recent data indicate that mineral content of a number of ground water basins in this region may be increasing.

Perchlorate[1] has been identified as a contaminant in the Colorado River (Hogue, 2003), and the use of Colorado River water has been identified as a source of ground water contamination in the Coachella Valley (EPA, 2005; CVWD, 2002). The source of the perchlorate is a former production facility in Henderson, Nevada (Hogue, 2003; CVWD, 2001). Water from waste ponds seeped into the ground water at the site. Contaminated ground water then moved through a buried river channel to Las Vegas Wash and into Lake Mead (Hogue, 2003; CVWD, 2001). Currently, the contaminated ground water is intercepted, and the perchlorate is removed before it reaches Lake Mead. In 1997, prior to the cleanup at the site, an estimated 900 pounds per day of perchlorate entered Lake Mead from Las Vegas Wash; this was reduced to an estimated 500 pounds per day by 2001 (Mayer, 2004). Table 5.1 shows a summary of monitoring data for 2002 and 2004 at five key points in the Colorado River. As shown, the concentrations of perchlorate have decreased considerably over the 2-year period, despite drought conditions in the basin. The goal of the treatment program in Las Vegas Wash is to reduce the perchlorate discharge to Lake Mead to less than 50 pounds per day.

Table 5.1 – Lower Colorado River 2002 and 2004 average perchlorate concentrations (ppb)

Location	2002	2004
Las Vegas Wash	500	150
Lake Mead	10	7
Hoover Dam	6	4
Parker Dam	5	< 4
Imperial Dam	5	< 4

Source: Mayer, 2004.

Drinking water in the Coachella Valley is entirely provided from ground water. Perchlorate in the Cove Communities of the Coachella Valley was observed between the detection limit (4 parts per billion [ppb]) and 5.4 ppb in 2001 and to 5.6 ppb in 2002 (CVWD, 2001; CVWD, 2002). The sources listed by CVWD (2002) were discharge of rocket fuel (Colorado River water) and fertilizer. Many fertilizers have been shown to contain perchlorate (Susarla, 1999; Orris et al., 2003), but the greatest concentration of perchlorate is associated with those from potash-bearing evaporite sources (Orris et al., 2003).

There is no drinking water standard for perchlorate, but EPA has established a reference dose (EPA 2005). The State of California has established a notification

[1] Perchlorate is a naturally occurring and manmade chemical. Most of the perchlorate manufactured in the United States is used as the primary ingredient of solid rocket propellant. In recent years, there has been increasing interest in perchlorate levels in soil, ground water, drinking water, and irrigation water. At high doses, perchlorate can interfere with iodide uptake into the thyroid gland (U.S. Food and Drug Administration, 2006).

level of 6 ppb CDHS (2005). None of the samples from ground water sources used by CVWD have exceeded the State notification level for perchlorate.

Environmental Consequences

Alternative A

Surface and ground water quantity and quality would not be affected under the No Action Alternative; however, upslope or surrounding development (additional wells) could slightly affect the water quantity and quality. Because perchlorate concentrations have been decreasing in the Colorado River, concentrations in crops irrigated with that water would be expected to decrease as well in the future.

Alternative B

Impacts would be the same as under Alternative A, with the possibility of slightly better water quality if damaged and degraded habitat were rehabilitated. Because perchlorate concentrations have been decreasing in the Colorado River, concentrations in crops irrigated with that water would be expected to decrease as well in the future.

Alternative C

High-intensity development, including additional wells, could moderately affect water quality and quantity. Storm runoff could result in greater water pollution. Because perchlorate concentrations have been decreasing in the Colorado River, concentrations in crops irrigated with that water would be expected to decrease as well in the future.

Alternative D

Under Alternative D, study area parcels would not be affected; however, upslope or surrounding development (additional wells) could slightly affect water quantity and quality. These adverse effects could be offset by slightly better water quality if damaged and degraded habitat were rehabilitated. Because the perchlorate concentrations have been decreasing in the Colorado River, concentrations in crops irrigated with that water would be expected to decrease as well in the future.

Mitigation

Prior to implementing a proposed project, proponent will prepare and have a storm water pollution prevention plan (SWPPP) onsite to prevent and/or minimize a spill or storm event impacting the project vicinity.

Residual Impacts

No residual impacts have been identified.

Land Use

As discussed in chapter 1, the Coachella Valley encompasses approximately 200,000 acres under various ownerships within Riverside County, California. Reclamation lands within the study area total 3,990 acres, while approximately 35,000 acres are under the jurisdiction of BLM and BIA. The State of California administers about 5,000 acres. The remaining 156,000 acres are county, city or private lands. (**See map 5.2, Coachella Canal Area Land Use – Land Cover**.) Approximately 43 percent of the land in the Coachella Valley is privately owned. As discussed in chapter 2, the remaining lands are managed by various Federal, State, and local government entities.

Affected Environment

All the land parcels within the study area administered by Reclamation were obtained for the purpose of developing and protecting the canal and related facilities. This section provides a discussion of both the Reclamation administered lands as well as land use on adjacent lands that may affect the study area. (**Photographs 5.1 and 5.2** show development in the study area.)

Coachella Canal Area Lands

Almost all Coachella Canal Area lands are currently operated and managed by the Coachella Valley Water District, Riverside County, or Coachella Valley Recreation and Park District through contractual agreements with Reclamation.

All of the Coachella Canal, the associated protective works, and water delivery systems within the area addressed by this RMP are transferred works (i.e., transferred by Reclamation to CVWD for care, operation, maintenance, and replacement). By virtue of Reclamation's authorized purposes, CVWD's normal operation and management procedures and requirements are paramount to any other uses of these lands and, as such, will not be subject to modification by this plan. Any uses proposed and/or alternatives considered will, by necessity, be considered in terms of their compatibility with CVWD's operations and maintenance. There is no termination date to this operation and management agreement, and it can be expected to run in perpetuity.

The existing agreement with Riverside County is for operating a county park at Lake Cahuilla, the terminal regulating reservoir of the Coachella Canal, a facility also operated by CVWD. CVWD's normal operation of Lake Cahuilla requires

Photograph 5.1 – Shadow Lake gated community/golf course under construction near Indio.

Photograph 5.2 – Subdivision development is occurring near Reclamation lands on west side of Coachella Valley.

drawdown during the weekdays and filling on weekends. However, the water level may be fluctuated at any time by CVWD or Reclamation, and they reserve the right to vary the water levels to whatever extent deemed necessary or desirable for the purposes of Project operations. Water from Lake Cahuilla is removed by pipelines and delivered to farm lands along the western side of Coachella Valley. The current contract between Reclamation and Riverside County expires on January 10, 2021.

The existing agreement with CVRPD is for Reclamation lands to be used for recreation development. CVRPD manages three separate areas on Coachella Canal Area lands for recreation. The agreement expires April 23, 2026.

The existing agreements with Riverside County and CVRPD or similar types of management or right-of-use agreements are or will be subordinate to Project purposes and needs of Reclamation and CVWD.

Through normal operations, numerous crossing agreements between Reclamation and utility companies, irrigation districts, and individuals have also been entered into over the years. Agreements currently exist for all of the following types of uses: bridges, access roads, crossing agreements, fences, power and transmission lines, telephone lines, fiber optic cables, water pipelines, and gas pipelines. Pre-existing authorized land uses will continue to be honored and protected.

Special use permits are also considered for rock collecting, archeological investigation, airports, wells, mineral exploration and extraction (including sand and gravel), surface water use or sale, and material storage. Pesticide and herbicide application on Reclamation lands requires a plan and permit.

Reclamation's Yuma Area Office has copies of all authorized conveyance documents dealing with second party use of Reclamation lands.

Adjacent Lands

The cities of Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, and Rancho Mirage lie within the Coachella Valley, near the study area. Together, their jurisdictions make up approximately 15 percent of the land base in the Coachella Valley (table 5.2). The remaining lands within the Coachella Valley are unincorporated. Land ownership is discussed in more detail below.

The Coachella Valley's primary roadway network consists of Interstate 10 and State Highways 111 and 86. Interstate 10 is an east-west four- and six-lane freeway that traverses the northern portion of the valley and accommodates local, regional, and national traffic. State Highways 111 and 86 are major intra- and inter-regional roadways that service the Coachella Valley. Cities and municipalities also maintain circulation systems consisting of a web of arterial

Table 5.2 – Municipalities within the study area

City	Acres
Cathedral City	12,526
Coachella	13,393
Desert Hot Springs	14,790
Indian Wells	9,324
Indio	16,770
La Quinta	20,289
Palm Desert	15,864
Palm Springs	60,344
Rancho Mirage	15,764

roadways built on a north-south/east-west grid pattern. Interestingly, in many locations, the region's north-south/east-west pattern of land use development and resulting road grid conflict with the region's northwest-southeast dominating topography, creating challenges for transportation planners and developers.

Regional Context

One of the best descriptions of land uses within the Coachella Valley and surrounding mountains can be found in the *Draft Coachella Valley Multiple Species Habitat Conservation Plan/Natural Communities Conservation Plan* (CVMSHCP/NCCP, 2005). The primary purpose of the plan is to address multiple species habitat conservation by actively engaging nine cities, a county, and numerous other agencies in the planning process. Although the boundaries of the CVMSHCP/NCCP differ from those of this study, the regional setting is similar, as both plans encompass the Coachella Valley. CVMSHCP/NCCP includes an expanded area that roughly encompasses the mountains surrounding the Coachella Valley from the valley floor to the top ridgelines. Table 5.3, taken from the CVMSHCP/NCCP, illustrates existing land uses within the Coachella Valley and surrounding mountainous areas.

Additional information concerning land ownership can also be found in the CVMSHCP/NCCP (table 5.4). As before, this information must be viewed within the context of this plan's regional context as it relates to the CVMSHCP/NCCP planning boundaries.

As illustrated in table 5.3, agriculture is one of the predominant land uses within the Coachella Valley. Farmland in the lower Coachella Valley may be categorized into two primary groups: (1) valley land that receives CVWD water and (2) hillside land that mostly relies on well water for irrigation. Land in the valley is more versatile, with field and row crops, produce, and permanent plantings of grapes, citrus and dates. The hillside land is almost planted exclusively with permanent crops, most of which are table grapes. However,

Table 5.3 – Existing land uses

Use	Total acres
Urban	67,364
Rural, rural residential	12,516
Agriculture	84,852
Lake (includes the Salton Sea)	43,460
Reservoir[1]	816
Wind energy uses	4,356
Quarry	928
Landfill	412
Public and private non-conservation lands[2]	320,566
Open space public and private conservation lands[3]	600,991
Indian reservation lands	69,578

[1] Includes Lake Cahuilla, Whitewater River recharge ponds, and other artificial water bodies.
[2] Includes private lands which are primarily undeveloped and public lands owned by Riverside County, Metropolitan Water District, the State Lands Commission, cities, the U.S. Army Corps of Engineers, Coachella Valley Water District, Reclamation, and the military which are used for non-conservation purposes.
[3] Includes public lands dedicated to open space and conservation purposes and private lands owned by land trusts or conservation organizations.

Table 5.4 – Land ownership (as of July 7, 2000)

Agency	Acres
Bureau of Land Management	283,016
California Department of Fish and Game	23,030
California Department of Parks and Recreation	13,010
Center for Natural Lands Management	708
Coachella Valley Mountains Conservancy	1,697
Coachella Valley Water District[1]	2,767
County	2,187
Desert Water Agency[1]	752
Friends of the Desert Mountains	1,064
Metropolitan Water District[1]	58
Military	125
National Park Service	167,685
Private	517,931
State Lands Commission	7,004
The Living Desert	641
The Nature Conservancy	1,576
The Wildlands Conservancy	5,124
U.S. Army Corps of Engineers	650
U.S. Fish and Wildlife Service	3,360
U.S. Forest Service	92,307
University of California Natural Reserve System	6,335
Indian Reservation[2]	69,578

[1] May not include all lands owned by this agency within the planning area.
[2] Includes all reservation lands, including tribal trust, allotted lands, and tribal fee (privately owned) lands.

permanent plantings, including table grapes and some citrus varieties, are suffering from the increasing inability of a large number of vineyards and groves to receive premium prices. As a consequence, older, less profitable vineyards are frequently purchased for conversion to vegetables and row crops.

Table 5.3 also lists 4,356 acres within the region dedicated to wind energy production. The valley's northwest entrance from the Inland Empire along Interstate 10 is known as the "San Gorgonio Pass" and is one of the windiest places on Earth. Cool coastal air is forced through the pass and mixes with the hot desert air, making the San Gorgonio Pass one of only three ideal places in California for steady, wind-generated electricity. Hundreds of huge wind turbines, spread across the desert and hills on either side of the highway, greet visitors as they approach the crest of the pass and have become a symbol of the area.

Minerals

Currently, no mineral development or exploration is occurring on Reclamation lands within the study area. Additionally, development of mineral resources would not be permitted if it would interfere with the use of the land for operation and maintenance of the Coachella Canal. Because it is known that lands within the region and adjacent to the study area have potential for mineral or energy development, it is assumed that this same potential exists on Reclamation administered lands. However, the extent or quantity of these resources is unknown. Geothermal resources are also present within the Coachella Valley.

Mineral and energy resources that are likely to occur within the study area are discussed below:

Oil and Gas There is potential for viable economic production of oil and gas resources to occur on land in the vicinity of the Coachella Canal. Little to no exploration for these resources has been conducted on Reclamation lands, so the extent of their occurrence, if any, is unknown.

Locatable Minerals Locatable minerals could occur in the Mecca Hills area, located in the extreme southeastern portion of the study area, although little exploration has been conducted. There are no known locatable minerals on Reclamation administered land, and no mining claims have been filed.

Leasable Minerals Leasable minerals and other resources that might occur on land administered by Reclamation throughout the study area include geothermal, oil and gas, sodium, and potassium. Commercially viable quantities of these resources have not been found on Reclamation lands, and no exploration and/or sales are projected for the future.

Saleable Minerals Minerals that could be sold are known to occur on Reclamation administered lands throughout the study area. Saleable minerals

include clay, sand, and gravel. Records indicate that no sales have occurred on Reclamation land to date. These types of common minerals are readily available throughout the region, and several commercially viable mining operations currently serve the rapidly expanding market.

In the event mineral resources were considered for development within the study area, Reclamation would be required to coordinate closely with BLM. By law, BLM is responsible for all mineral actions on Reclamation-administered land. This coordination would consist of gathering additional information concerning the occurrence and potential quantities of any mineral resources, as well as an assessment of the potential impacts resulting from the development of the mineral resource, especially impacts to the O&M of the canal.

Environmental Consequences

Alternative A

Under this alternative, existing land use authorizations would be allowed to continue. New authorizations would be allowed if they would not adversely affect Project features or the delivery of water to Coachella Canal water users. Private exclusive uses would not be allowed. Land uses that adversely affect threatened and endangered or other special status species or critical habitat also would not be allowed unless proper mitigation measures could be achieved and environmental clearances obtained.

Alternative B

Implementation of this alternative would be the same as Alternative A, with the following exceptions. Future land use authorizations would be limited to those that benefit natural and cultural resources within the study area. Additionally, existing land uses that may adversely affect natural and cultural resources would be phased out. Implementation of this alternative would result in the fewest adverse environmental impacts of all alternatives under consideration.

Alternative C

Implementation of this alternative would be the same as Alternative A, except that an emphasis would be put on future land use authorizations that maximize recreation, community, and commercial development as well as passive outdoor recreation pursuits on open space areas. Additionally, emphasis would be placed on entering into agreements with non-Federal government entities for planning, developing, and managing additional recreation facilities and opportunities. Emphasis also would be placed on working with recreation managing partners in amending existing agreements to provide for additional developed recreation area and passive recreation opportunities on open space lands.

Alternative D (Preferred Alternative)

Implementation of this alternative would be the same as Alternative A, except that land use authorizations would be limited to those that do not adversely affect natural resources. Additionally, emphasis would be placed on entering into agreements with non-Federal government entities for planning, developing, and managing additional recreation facilities and opportunities. Also, under this alternative, land uses that are not compatible with Project purposes would be phased out, whereas under Alternative A all existing land uses would be allowed to continue. Implementation of this alternative could result in fewer adverse environmental impacts than under Alternatives A or C but potentially greater environmental impacts than under Alternative B.

Mitigation

All new land use authorizations/crossing agreements will need to comply with NEPA, ESA, and National Historic Preservation Act of 1966, as amended, requirements.

Residual Impacts

No residual impacts have been identified.

Vegetation and Wildlife

Affected Environment

Reclamation biologists conducted an inventory of study area lands April 19–23, 2004, to collect reconnaissance-level data on vegetation, habitat quality, and general wildlife use (Appendix: Biological Inventory of the Coachella Canal Area). The following types of surveys were conducted:

- Plant community classification, with emphasis on documenting sand habitat and dominant, subdominant, and invasive plant species
- Habitat quality assessment with focus on disturbance factors
- Area searches for breeding and migrating birds
- Acoustical bat surveys using Anabat detectors within selected habitats
- General wildlife assessment

Vegetation

The Coachella Valley is located within the Yuma Desert portion of the northwestern Sonoran Desert. The valley is composed of creosote bush and other plant communities typical of the lower elevations of the desert southwest. Because of the arid environment, vegetation cover in desert plant communities is generally 10 percent or less of the total land surface (Crosswhite and Crosswhite, 1982). Study area lands include a variety of general plant community types and more specific vegetation series based on classifications of Sawyer and Keeler-Wolf (1995). (See table 5.5 and **map 5.3, Coachella Canal Area Dominant Vegetation**.)

Table 5.5 – Plant communities and associated vegetation series classifications found in biological inventory parcels in the Coachella Valley

Major plant community	Vegetation series	Biological inventory parcel
Sonoran creosote bush scrub	Creosote bush-shrub Creosote bush-white bursage shrub	1, 2, 4, 6-9, 12-14, 20, 22, 25, 27, 29, and 30.
Desert saltbush scrub	Four-wing saltbush shrub	1, 2, 3, 15, 16, 17, 22, 24, 26, 27, and 32
Dry desert wash woodland	Blue palo verde-ironwood-smoke tree Tamarisk Catclaw acacia shrub	1-3, 5, 8, 9, 12, 14-16, 20, 22, and 24-27
Desert aeolian sand fields	Mesquite hummocks Stabilized and partially stabilized sand fields Ephemeral desert sand fields	4, 7, 17, 26, 27, 30, 31, 34, and 37
Sonoran cottonwood-willow riparian forest	Fremont cottonwood	26 and 27

Much of the study area has been altered by varying degrees of disturbance, including OHV use, illegal dumping, canal and access road construction, drought, and invasive plant species. Much of the area adjacent and outside of the canal spoils berms on the uphill side has been affected by blockage of surface flow on the alluvial fans. These blockages have resulted in periodic ponding and sedimentation, resulting in barren areas or areas dominated by invasive plants, including salt cedar.

Sonoran Creosote Bush Scrub Creosote bush scrub is the most abundant and extensive vegetation community in the desert southwest. The community is dominated by creosote bush (*Larrea tridentata*) and covers much of the bajadas (broad, gently sloping alluvial fans) and lower-gradient desert slopes; the greatest development occurs on coarse, well-drained soil with lower salinity. In the Salton Basin, creosote bush scrub occurs in the areas between the higher rocky hillsides and the lower desert saltbush community. Many species of herbaceous annual plants may flower in late winter/early spring if winter rains are sufficient. Some

of the lower portions of Reclamation's parcels are in the transition zone near the Coachella Valley floor between the Sonoran creosote bush scrub and the desert saltbush scrub.

Associated special status species associated with this vegetation type are Peninsular bighorn sheep, Palm Springs ground squirrel, Palm Springs pocket mouse, desert tortoise, burrowing owl, Coachella giant sand treader cricket, Coachella Valley grasshopper, Casey's June beetle, Coachella Valley milkvetch, triple ribbed milkvetch, Mecca aster, and Orocopia sage.

Desert Saltbush Scrub Saltbush scrub occupies habitats that are generally moist, with a sandy loam soil, and relatively high soil salinity. Once common in the study area, this community now occurs only in small patches at the lower elevations and often intergrades with the Sonoran creosote bush scrub.

Special status species associated with this community are flat-tailed horned lizard, Le Conte's thrasher, crissal thrasher, and Coachella Valley grasshopper. This community may be used during migration by riparian birds.

Dry Desert Wash Woodland The dry desert wash woodland plant community is interspersed throughout the other plant communities within drainage courses. Because of intermittent flooding and higher ground water, this community has denser, taller, and more diverse vegetation, as well as more abundant and diverse wildlife. Because washes often transect large expanses of desert through a variety of plant communities and have more diverse wildlife forage and cover vegetation, they can serve as movement corridors**.**

Desert Aeolian Sand Fields Most of the wind-deposited sands are stabilized or partially stabilized desert sand fields. On these fields, sand accumulates on flats or slopes in non-dune deposits; and sand becomes at least partially anchored by vegetation. They most often occur on the toes of alluvial fans and bajadas (BLM, 2001). Sand fields are areas of great management concern in the Coachella Valley because many associated endemic federally listed and other special status species occur in these areas. The section on special status species discusses these species.

Another class of sand habitat is the mesquite hummocks found on Reclamation properties adjacent to the Indio Hills. These areas have large clumps of honey mesquite shrubs, which may form hummocks over sand dunes and sand fields. These areas are associated with high soil moisture, springs, and nearby faults. Changes in soil moisture and water table declines may have affected the ecological integrity of hummocks. The remaining mesquite hummocks have been highly fragmented and have reduced the mesquite reproduction and vegetative cover (Coachella Valley Associations of Governments, 2004). An extensive area of mesquite hummocks was within parcels 26 and 27; a small mesquite hummock was in parcel 31 and 34; and a severely degraded one was found in parcel 37.

Most areas with sand that were inventoried were affected by OHV use and invasive plant species, especially Russian thistle or tumbleweed (*Salsola tragus*).

Sand habitats have been reduced in extent and degraded by OHV use, introduction of invasive plants, and adjacent urban and agricultural developments. Another major threat is the alternation of the upwind sand sources, as well as disruption of the sediment-delivery systems that sustain sand features (Griffiths et al., 2002). Sand is initially transported from mountain areas by streams during episodic floods and then blown and deposited during periodic wind events. Developments on alluvial fans and stream channels have reduced the fluvial sediment reaching depositional areas upwind of the sand fields. Roads and housing developments have also altered sand movement patterns.

Sonoran Cottonwood-Willow Riparian Forest This community consists of mostly broad-leaved streamside trees up to 60 feet tall, dominated by Fremont cottonwood (*Populus fremontii*) with dense understories of willow (*Salix*) and tamarisk—bordering streams or surrounds—isolated springs and seeps. A small, isolated stand (oasis) was found in Reclamation's parcels 26 and 27. (See **photograph 5.3**.) One stand was supported by surface water flowing from irrigation returns from an adjacent vineyard; the other was supported by leakage from a large water tank.

Photograph 5.3 – Cottonwood-willow oasis provides stopover habitat for neotropical migrant landbirds in biological inventory parcel 27.

General Habitat Quality Categorizations of Reclamation's Parcels

As a result of Reclamation's biological inventory in the Coachella Valley, parcels were categorized according to habitat quality, potential for special status species,

occurrence of sand habitat, degree of disturbance, connectivity to adjacent habitat, and fragmentation. (See table 5.6 and **map 5.4, Coachella Canal Area Biological Survey Parcels.**)

Table 5.6 – Habitat categorization of Reclamation's biological inventory and RMP parcels

Special habitat and habitat quality categorization	Biological inventory parcels (RMP parcels)
Stabilized sand fields and other sand formations	4, 7, 17, 26, 27, 30, 32, 37 (G, H, K, I, M, R)
Mesquite hummocks	26, 27, 31, 34, 37 (J, K, M)
Cottonwood-willow oases	26, 27
Peninsular bighorn sheep habitat and disturbance buffers	1, 2, 4, 5, 6, 7, 8, 9 (O, P, R, S, T)
Relatively undisturbed desert shrub and dry wash woodland habitat with connectivity to adjacent habitat	1, 2, 4, 5, 6, 8, 9, 29, 31, 35, (I, O, P, R, S, T)
Mostly disturbed habitat and/or fragmented and isolated from adjacent habitat	3, 7 (part), 18, 19, 21, 24, 28, 30, 33, 34, 36, 38 (D, E, F, H, Q)
Parcels on east side of Coachella Valley bordering the Coachella Canal with varying degree of disturbance. Isolated strips west of canal are heavily disturbed and fragmented; strips east of the canal have some undisturbed desert shrub habitat connected with pristine desert habitat; habitat just outside of levee toes disturbed by ponding, sedimentation, and invasive plants.	12-17, 20, 22, 23, 25, 26, 27 (B, C)

The key factor reducing habitat quality of Reclamation parcels is land clearing for roads, gravel mines, borrow areas, canal right-of-ways, and other developments. Secondly, parcels that still support desert scrub vegetation and/or sand deposits have reduced habitat value if they are isolated from continuous desert habitat and surrounded by developments, including agriculture and urban (habitat fragmentation). For example, on the west side of the Coachella Valley, small, isolated tracks of desert habitat lie between the Coachella Canal and adjacent agricultural fields. Another factor reducing habitat quality is OHV use, which has created many miles of unauthorized roads that dissect much of Reclamation's parcels, increase erosion, destroy native vegetation, and trample wildlife and their burrows.

Wildlife

Much of the Coachella Valley's wildlife is small, nocturnal, cryptically colored, (i.e., camouflaged), and seeks shelter below ground during the heat of the day. As a result, to many, the desert shrub habitats may appear harsh, desolate, with no wildlife in sight. However, a careful observer will find evidence of many animals, such as foxes, coyotes, rabbits, lizards, snakes, beetles and other wildlife,

Photograph 5.4 – View of Santa Rosa Mountains with Reclamation lands in foreground (parcel T and biological inventory parcel 9). This photo represents relatively undisturbed, unfragmented desert shrub habitat which occurs on several Reclamation parcels throughout the western side of Coachella Valley. The endangered Peninsular bighorn sheep normally occupies the steeper habitat but occasionally ranges into the lower alluvial fans.

providing evidence that the desert has a diverse wildlife community, including several species found nowhere else on Earth. (See **photograph 5.4**.)

Mammals During Reclamation's biological inventory of study area lands, mammals and their signs were directly observed throughout most of the parcels. The most common large mammal on most parcels was the coyote. Signs of burrowing rodents and rabbits also were common. Numerous bat species were detected during nocturnal surveys. An understanding of the species that are found in the desert shrub communities is essential to the development of a sound resource management plan that protects and enhances this habitat.

Many species of mammals have adaptations for the hot, arid desert environment, such as noctural activity, low water requirements, adaptations for sand, or ability to reflect solar radiation. These include kit foxes (*Vulpes macrotis*), kangaroo rats (*Dipodomys*), pocket mice (*Perognathus*), cactus mouse (*Peromyscus eremicus*), and antelope ground squirrel (*Ammospermophilus leucurus*).

Bats During Reclamation's biological inventory in April and September 2004, at least 15 bat species were detected (table 5.7). The greatest bat species diversity at

Table 5.7 – Bat species detected on study lands during biological inventory in 2004

Common name	Latin name
Pallid bat	*Antrozous pallus*
Townsend's big-eared bat	*Corynorhinus townsendii*
Big brown bat	*Eptesicus fuscus*
Spotted bat	*Euderma maculatum*
Hoary bat	*Lasiurus cinereus*
Western yellow bat	*Lasiurus xanthinus*
California myotis	*Myotis californicus*
Western small-footed myotis	*Myotis ciliolabrum*
Little brown myotis	*Myotis lucifugus*
Cave myotis	*Myotis velifer*
Yuma myotis	*Myotis yumanensis*
Pocketet free-tailed bat	*Nyctinomops femorosaccus*
Big free-tailed bat	*Nyctinomops macrotis*
Western pipistrelle	*Pipistrellus hesperus*
Brazilian free-tailed bat	*Tadarida brasilensis*

any one site was in parcel 8 in April 2004 and parcel 9 (west) in September 2004; 10 species were observed at each site. The greatest bat activity in terms of number of bat passes per hour was observed at Cahuilla Lake (23.5 passes per hour) and parcel 7 (14.1 passes per hour). For comparison, during September at the Coachella Preserve, 8 species were detected, with total bat activity of 14.5 passes per hour. The most numerous bats were consistently western pipistrelle at all survey sites. The rare spotted bat was detected at three survey sites, including Lake Cahuilla, and in parcels 8 and 9.

Birds During Reclamation's biological inventory in April 2004, a total of 56 bird species were observed, including 27 species of neotropical migrant landbirds (**attachment D**). Because this survey was conducted during the early spring migration, many of the bird species are assumed to be migrating birds and winter residents.

The density of breeding bird species can be quite low in deserts. Typical Sonoran Desert sites generally have fewer than 25 breeding bird species (MacMahon, 1992). In the most austere sites, such as a creosote bush flat, there may be only a single breeding species, the black-throated sparrow (*Amphispiza bilineta*). As one ascends bajada, the vegetation becomes increasingly complex, and the number of species likewise increases, especially where there are taller plants, such as blue palo verde. On the lower parts of bajadas and on valley plains, there may be no birds or just one for every 3 acres of land. Many other birds are associated with the arid desert habitat, including Gambel's quail, greater roadrunner, mourning dove, verdins, black-tailed gnatcatchers, common raven, turkey vulture, loggerhead shrike, and red-tailed hawk.

Throughout the desert southwest, the densest and most abundant breeding and migrating birds are found in riparian areas supporting the Sonoran cottonwood-willow riparian forest plant community. Examples of breeding birds dependant on riparian areas include summer tanager, yellow-breasted chat, Abert's towhee, Bullock's oriole, common yellowthroat, and several others. The only riparian area on Reclamation lands are two small oases associated with irrigation return flows and leakage from a water tank. These stands are too small to support a large number of breeding riparian obligates. However, these oases serve as resting habitat for a great variety of migrating neotropical migrant landbirds.

Reptiles and Amphibians Lizards, snakes, and toads are abundant and diverse in the Sonoran Desert, occupying a wide range of habitats and niches including arboreal, rock dwelling, detritus dwelling, digging, sand swimming, burrowing, insectivorous, carnivorous, herbivorous, diurnal, nocturnal (Crosswhite and Crosswhite, 1982).

Adaptations for Extreme Heat and Aridity Desert lizards and snakes have developed a number of adaptations to regulate body temperature (thermoregulation). For example, they are active during midday in spring and fall but active during early morning and late afternoon in summer. The common kingsnake (*Lampropeltis getulus*) and the pine-gopher snake (*Pituophis melanoleucus*) are diurnal snakes that shift to nocturnal activity during hot weather.

In contrast, several diurnal lizard species have adaptations to maintain relatively lower and uniform body temperatures. Additionally, some desert reptiles, such as the desert iguana (*Dipsosaurus dorsalis)*, can tolerate quite high body temperatures. This lizard lives in the expansive sandy flats and hummocks characteristic of the creosote woodlands.

During periods of environmental stress such as prolonged drought, desert amphibians spend long periods of inactivity in burrows, often in those dug by rodents or other mammals. An example is the western spadefoot (*Scaphiopus hammondi*) which can be numerous where soil conditions favor burrowing. Deep burrows provide microhabitat with moderate temperatures and humidity. This species becomes active during wet periods and breeds in temporary pools that may dry up soon after the rains end.

Sand Swimming: Adaptations for Loose, Windblown Sand Certain desert species have specializations for living in loose, windblown sand. Sand lizards, including the Coachella Valley fringe-toed lizard (*Uma inornata*) and zebra-tailed lizard (*Callisaurus draconoides*), are superbly adapted for swimming and breathing in loose sand (MacMahon, 1992). Sand swimming is a strategy used to avoid capture or to avoid extreme temperatures by rapidly burrowing into the sand.

Two snake species present in the Coachella Valley are also highly specialized for sand swimming. The western shovel-nosed snake *(Chionactis occipitalis*) has a small shovel-shaped head, valved nostrils, flattened belly, and smooth scales

which allow this burrower to move quickly through sand. The spotted leaf-nosed snake (*Phyllorhynchus decurtatus*) also is an adept burrower in sandy creosote bush desert.

In addition to the sand swimmers, other diurnal lizards present in the Coachella Valley include the desert horned lizard (*Phrynosoma platyrinos*) and the flat-tailed horned lizard (*Phrynosoma mcallii)*. These species freeze if danger approaches when they are out in the open, relying on their camouflage for safety. This strategy, however, does not work well as a defense against vehicles. OHV use is a significant source of mortality for these species.

Many other reptiles live in the Coachella Valley, including chuckwalla (*Sauromalus obesus*), side-blotched lizard (*Uta stansburiana)*, western whiptail, (*Cnemidophorus tigris*), the desert spiny lizard (*Sceloporus magister*), long-tailed leopard lizard (*Crotophytus wislizenii*), and long-tailed brush lizard (*Urosaurus graciosus*). Species of snakes are glossy snake (*Arizona elegans*), western blind snake (*Leptotyphlops humilis*), western long-nosed snake (*Rhinocheilus lecontei*), coachwhip (*Masticophis flagellum*), western patch-nosed snake (*Salvadora hexalepis)*, night snake (*Hypsiglena torquata*), western diamondback rattlesnake (*Crotalus atrox*), and the Colorado desert sidewinder (*Crotalus cerastes*).

Threats to the Vegetation and Wildlife of Coachella Valley Desert Region
Although the native species of the Sonoran Desert are well adapted to its extreme conditions and generally form robust communities, the Sonoran Desert is also vulnerable to physical disturbance and biological invasion. Since the end of World War II, the "sunbelt area" of the Southwest has experienced the largest in-migration in human history (Nabhan and Holdsworth, 1999). In 1990, the Sonoran Desert ecoregion contained 6.9 million residents, nearly double the population in 1970. The population is expected to reach 12 million by 2020. Under such human growth pressure, the threats to Sonoran Desert biodiversity reported by Nabhan and Holdsworth (1999) likely will become more severe. Conversion of natural habitat to urban, suburban, industrial, and agricultural uses has and likely will continue to result in extensive habitat loss. Increasing recreational use of the desert is resulting in habitat damage and declines in some species. Additionally, the spread of invasive plants and animals threaten the viability of both terrestrial and riverine/riparian systems alike.

Recent observations in the Coachella Valley indicate that most parcels are disturbed and fragmented by dumping trash and numerous unauthorized roads. These roads are a source of mortality to sand swimming lizards and snakes, which burrow into the shallow top layers of soil and can be crushed, as well as flat-tailed horned lizards and desert horned lizards, which rely on camouflage.

Environmental Consequences

Reclamation would continue to conduct site-specific NEPA compliance with appropriate mitigation for any proposed land uses and developments. The discussion of impacts is programmatic in nature.

Potential borrow pit/stockpile sites would be retained within parcels B-R on the east side of the Coachella Valley adjacent to the Coachella Canal. When these sites are used, excavation of borrow material could result in net loss of vegetation and displacement/mortality of wildlife in creosote bush shrub, desert saltbush scrub, and/or dry desert wash woodland habitats. Some of these sites are within previously disturbed habitat from canal construction and unregulated OHV use (parcels D, E, F, H, and K). Mitigation would replace lost habitat values. Alternatives B, C, and D would include early initiation of NEPA compliance for those sites that may have borrow activities in short-notice emergency situations.

Open space recreation would be provided in portions of parcels A, B, C, D, E, F, K, R, S, and T, which could result in relatively minor disturbances to vegetation and wildlife (compared to developed recreation facilities and trails). However, the degree and extent of disturbance could increase with the anticipated increasing population growth and demand for recreation.

All the action alternatives would include the initiation of a comprehensive weed control program and rehabilitation of infested habitat, which would greatly benefit vegetation and wildlife.

Alternative A

Under the No Action Alternative, Reclamation lands would be managed and considered for development on a case-by-case basis, as under current conditions. Although environmental compliance would be conducted for each development action, this alternative could result in sporadic land use planning with an incremental loss and continued degradation of vegetation and wildlife habitat. Because of lower levels of coordinated long-term planning and possible delays or deficiencies in protection of higher value habitats, such habitats more likely would degrade into lower value as a result of increasing recreational use and development in light of increasing population growth and development pressure.

Unregulated OHV use and illegal dumping would continue and probably increase. Without an overall strategy for protecting intact and higher value habitat blocks, fragmentation, degradation, and wildlife mortality would increase.

This alternative would not include a comprehensive weed control program. The invasion and spread of noxious weeds would continue to affect native vegetation and wildlife.

The current level of agency coordination would continue. Fewer opportunities would exist to cooperatively develop and implement habitat and wildlife inventory and management projects with other agencies.

Alternative B

The comprehensive land use strategy proposed for this alternative would emphasize protection and restoration of vegetation and wildlife habitats. Developments that would adversely affect habitat would be discouraged. Future land use authorizations would be limited to those that benefit vegetation and wildlife. Land uses that may affect vegetation and wildlife would be phased out, if feasible. Greater agency coordination with CDFG would occur through development of an inventory, monitoring, and protection plan for vegetation and wildlife habitat.

Fewer adverse effects resulting from recreational OHV use would occur than under the No Action Alternative because OHV use would be eliminated, except for emergency situations. Areas with degraded habitat and reduced vegetation cover caused by unauthorized OHV use would be closed and rehabilitated. The proposed interpretive program would attempt to educate the recreational public about the unique plants and wildlife and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

Alternative C

The comprehensive land use strategy proposed for this alternative would emphasize recreation, community, and commercial development. Although protection would be given to special habitats where feasible, vegetation and wildlife habitat in those locations where developments and access roads occur would be adversely affected. Reclamation would conduct NEPA and ESA compliance for all developments, and mitigation would offset any impacts to special habitats, as outlined in "Environmental Commitments."

Because OHV use would be restricted to designated areas, habitat would be better protected than under the No Action Alternative. Interpretive signs designed to educate the public on ways to avoid direct impacts would be used. However, some areas could experience habitat degradation from continued or increased OHV use in designated areas. Mortality to wildlife could occur in OHV areas, especially to those species that rely on freezing and blending into the environment rater than fleeing oncoming vehicles.

Instead of occurring on open space, recreation would occur or could be expanded on developed sites in portions of parcels A, B, C, D, E, F, K, R, S, and T. As a result, net loss of vegetation and wildlife habitat value could occur in creosote bush shrub, desert saltbush shrub, and/or dry desert wash woodland habitats. Portions of some of these sites are currently used or may be used for borrow pits,

while some are within previously disturbed habitat from canal construction and unregulated OHV use. Expansion of recreation developments in parcels O-T could affect some undisturbed desert habitat. NEPA compliance would be completed before implementing actions that could affect vegetation and wildlife. Mitigation would avoid critical areas and would replace lost habitat values.

Alternative D

The comprehensive land use strategy proposed for this alternative would be similar to that for Alternative A, along with limited development of recreation opportunities and facilities. In addition, protection and restoration of vegetation and wildlife habitats would be a priority, while developments and land use authorizations that could affect habitat would be discouraged. Agency coordination with CDFG would be enhanced through development of an inventory, monitoring, and protection plan for vegetation and wildlife habitat.

Recreation developments could include construction of a limited number of multi-use trails using criteria to ensure that vegetation and wildlife minimally affected. If more passive types of recreation in parcels E, K, R, and portions of S and T are encouraged from qualified recreation partners, minor disturbances to vegetation and wildlife could be greater.

Eliminating OHV use, except for emergency situations, would benefit vegetation and habitat. Areas with degraded habitat and reduced vegetation cover resulting from unauthorized OHV use would be closed and rehabilitated. Interpretive programs implemented by qualified partners would attempt to educate the recreational public about the unique plants and wildlife and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

As under all other alternatives, borrow pits could be established in parcels with varying degrees of impacts to vegetation and wildlife. This alternative would provide a higher level of stabilization techniques to ensure that offside impacts are avoided. In addition, unused or abandoned sites would be reclaimed and restored to natural habitat conditions.

Mitigation

See “Special Status Species.”

Residual Impacts

No residual impacts have been identified.

Special Status Species

Affected Environment

In compliance with the Endangered Species Act of 1973, as amended, Reclamation consulted with the U.S. Fish and Wildlife Service to obtain a list of Federal special status species that may occur within the study area (**attachment A**). These species, along with California special status species and species covered in the CVMSHCP/NCCP (Coachella Valley Associations of Governments, 2004) are listed in table 5.8 with their status and remarks on their habitat and potential for occurrence on Project lands.

Table 5.8 – Special status species on Coachella Valley Area lands
FE – Federal endangered; FT – Federal threatened; SE – State endangered; ST – State threatened; CSC – State species of special concern; SFP – State fully protected; R – Species of local concern in the CVMSHCP/NCCP and former Federal Candidate species and U.S. Fish and Wildlife Service species of concern.

Species	Status	Potential for occurrence/location
Plants		
Mecca aster *Xylorhiza cognata*	R	Unlikely. Sandy washes and deep mountain canyons. Reclamation lands too low in elevation and outside deep canyon habitat.
Coachella Valley milkvetch *Astragulus lentiginosus* var. *cochellae*	FE	Likely. Sand flats. In sand deposited by wind and washes.
Triple-ribbed milkvetch *Astragalus tricarinatus*	FE	Unlikely. Canyon slopes and bottoms in gravely and sandy soil. Reclamation lands too low in elevation and outside deep canyon habitat.
Peirson's milkvetch *Astragulus magdalenae* var. *peirsoni*i	FT	Unlikely. Occurs on sand dunes in the Algodones Dunes system of Imperial County.
Orocopia sage *Salvia greatae*	R	Likely. Gravely and rocky soils on alluvial fans on east side of valley near Mecca Hills.
Little San Bernardino Mountains gilia *Linanthus maculatus*	R	Unlikely. In loose sand in mountain washes between 500-4000 feet elevation. Reclamation lands too low in elevation.
Invertebrates – Insects		
Coachella Valley giant sand-treader cricket *Macrobaenetes valgum*	R	Possible. In active sand dunes and hummocks. Sand formations on Reclamation parcels are mostly stabilized sand fields. Most potential in Reclamation's Mesquite Hummocks.
Coachella Valley Jerusalem cricket *Stenopelmatus cahuilaensis*	R	Unlikely. In active and stabilized sand dunes and fields. Limited to moist soil conditions and known only in the northwest portion of Coachella Valley, west of Palm Springs.

Table 5.8 – Special status species on Coachella Valley Area lands (continued)

Species	Status	Potential for occurrence/location
Fish		
Desert pupfish *Cyprinodon macularis*	FE	Unlikely. Restricted to San Sebastian Marsh, San Felipe Creek, Salt Creek, and in irrigation canals and drains near the Salton Sea; ponds at Palm Canyon, the Anza-Borrego Desert State Park, the Coachella Valley Preserve, and Oasis Spring.
Razorback sucker *Xyrauchen taxanus*	FE	Unlikely. Not found in the Cochella Valley; only in the Colorado River.
Amphibians		
Arroyo southwestern toad *Bufo californicus*	FE/CSC	Unlikely. In running streams in canyons. Reclamation lands outside canyons with running streams.
Reptiles		
Desert tortoise *Gopherus agassizii*	FT/ST	Unlikely. Eastern rim of Coachella Valley above 2000 feet in alluvial fans, washes and rocky slopes. Reclamation lands too low in elevation.
Flat-tailed horned lizard *Phrynosoma mcallii*	CSC	Likely. Sand flats, gravely flats and desert pavement within creosote shrub communities below 800 feet elevation
Coachella Valley fringe-toed lizard *Uma inornata*	FT/SE/SFP	Possible. Active or minimally stabilized dunes and hummocks with adjacent scattered vegetation.
Birds		
Yuma clapper rail *Rallus longirostris yumanensis*	FE	Unlikely. Found only in wetlands near the Salton Sea in the Whitewater River, delta and drains, Salt Creek, and the Dos Palmas Marsh
Burrowing owl *Athene cunicularia*	CSC	Likely. Open desert county, edges of agricultural fields and canal banks.
Southwestern willow flycatcher *Empidonax traillii extimus*	FE/SE	Possible during migration. Dense riparian vegetation near water. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Crissal thrasher *Toxostoma crissale*	CSC	Possible. Mesquite hummocks and saltbush shrub.
Le Conte's thrasher *Toxostoma lecontei*	SCS	Possible. Sparsely vegetated desert flats, dunes, alluvial fans with saltbush and cholla cactus.
Least Bell's Vireo *Vireo bellii pusillus*	FE/SE	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.

Table 5.8 – Special status species on Coachella Valley Area lands (continued)

Species	Status	Potential for occurrence/location
Birds (continued)		
Gray vireo *Vireo vicinior*	SCS	Possible during migration in riparian vegetation, mesquite, and desert washes. Breeds in pinyon-juniper and chaparral habitat.
Yellow warbler *Dendroica petechia brewsteri*	SCS	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Yellow-breasted chat *Icteria virens*	SCS	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Summer tanager *Piranga rubra*	R	Possible during migration in dense riparian vegetation and mesquite. The small riparian oasis in Reclamation's parcel is probably too small to support breeding birds.
Mammals		
Southern yellow bat *Lasiurus ega*	R	Possible. Roosts in fan palm oasis and untrimmed planted palms. Forages over entire area, especially near water sources.
Palm Springs round-tailed ground squirrel *Spermophilius tereticaudus chlorus*	CSC	Possible. Mesquite hummocks and sand fields with large shrubs.
Palm Springs pocket Mouse *Perognathus longimembris bangsi*	CSC	Likely. Sandy soils, moderately sloping desert scrub.
Peninsular bighorn sheep *Ovis Canadensis nelsoni*	FE/ST/S FP	Likely on or near steep slopes at base of Santa Rosa Mountains at Toro Canyon and near Lake Cahuilla.

The following section discusses habitat association, life history, and threats to those species listed in table 5.8 that could occur on Reclamation lands. Much of the information comes from the CVMSHCP/NCCP (Coachella Valley Associations of Governments, 2004). Several species were eliminated from further evaluation because their distribution or habitat does not range into Reclamation parcels in the Coachella Valley. These include Mecca aster, triple-ribbed milkvetch, Pierson's milkvetch, little San Bernardino Mountain gilia, Coachella Valley Jerusalem cricket, desert pupfish, razorback sucker, arroyo southwestern toad, desert tortoise, and Yuma clapper rail.

Plants

Coachella Valley Milkvetch This Coachella Valley endemic species grows in dunes and sand flats, along the disturbed margins of sandy washes, and in sandy soils along roadsides in areas formerly occupied by undisturbed sand dunes. Within the sand dunes and sand fields, this milkvetch tends to occur in the coarser sands at the margins of dunes and not in the most active blow sand area (Coachella Valley Associations of Governments, 2004). It is an annual/perennial herb that blooms from February to May with an elevation range of 198-2160 feet (60-655 meters). It is known from less than 20 locations in the Coachella Valley. At one time, it occupied sand habitat in what is now Palm Springs and Palm Desert. Its habitat was greatly reduced by urbanization. Part of the remaining population is protected in the Coachella Valley Preserve System. The primary threat to the Coachella Valley milkvetch is habitat destruction due to continuing urban development, including the direct effects of habitat conversion and OHV use.

Orocopia Sage This evergreen flowering shrub is endemic to eastern slopes of the Coachella Valley in the Orocopia Mountains, Mecca Hills, and Chocolate Mountains. This species is associated with desert dry wash woodland and Sonoran creosote bush scrub and grows in gravelly or rocky soils on alluvial fans. In desert washes and canyons, it may occur on alluvial terraces and sandy or rocky benches elevated above the flood plain with an elevation range of 132-2723 feet (40-825 meters). It blooms in March and April.

Orocopia sage is patchy in its distribution; but where it occurs, it is usually one of the dominant members of the vegetation. During droughts, this plant may remain dormant, without blooming and forming only sparse new shoots.

Much of its habitat is protected within the Mecca Hills, Orocopia Mountains, and Chuckwalla Mountains Wilderness Areas. However, some threat may exist from unauthorized OHV use. However, because most Orocopia sage stands are on rocky slopes or alluvial fans, much of the population is relatively isolated from vehicle traffic (Coachella Valley Associations of Governments, 2004).

Insects

Coachella Valley Giant Sand Treader Cricket This endemic insect occurs only in the active sand hummocks and dunes in the Coachella Valley. Its preferred habitat is in windblown sand dominated by creosote bush, burrobush, honey mesquite, Mormon tea, desert willow, and sandpaper bush. It appears to avoid stabilized sand areas. The giant sand treader cricket is mostly nocturnal, coming to the surface to forage on detritus blown over the dunes or to look for mates. During the day, it digs burrows from 16.5-66 feet (5-20 meters) deep and seeks cover deep in the sand. The adult and juvenile instars disappear during the

warm months of the year, perhaps spending the summer in the egg stage. Activity of small juvenile instars begins in the late fall through early winter. By mid to late spring, the adults have disappeared.

Development, loss of active windblown sand ecosystems and disruption of sand sources and corridors, and OHV use have greatly reduced habitat of the giant sand treader cricket.

Reptiles

Flat-Tailed Horned Lizard This species ranges in the deserts of Imperial, Riverside, and San Diego Counties, south to Baja, California, and Sonora, Mexico; and in the extreme southwestern portion of Arizona. It is associated with sand flats and the edges of sand dunes but rarely occurs on larger dunes. It also inhabits concreted silt and gravel substrates. Its optimum habitat consists of hard packed sand or desert pavement overlain with fine blow sand. It is most commonly associated with Creosote-white bursage desert scrub. Its diet consists almost exclusively of harvester ants. The flat-tailed horned lizard is often active during the day feeding, digging burrows, and escaping predators. It uses burrows to escape the hotter periods and also for winter hibernation from mid-November to mid-February.

In the Coachella Valley, the flat-tailed horned lizard occurs at elevations below approximately 800 feet. A known key population near Reclamation lands occurs at the east end of the Indio Hills on the north side of the Coachella Canal (Coachella Valley Associations of Governments, 2004; Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003). A potential habitat corridor exists currently between the east end of the Indio Hills and the Coachella Valley Preserve, which serves as an important refuge for the lizard and several other special status species.

Threats to habitat include agricultural and urban development, utility corridors, canal construction, and OHV use. An estimated 84 percent of historic habitat has been lost to urban and agricultural development (Coachella Valley Associations of Governments, 2004).

The Service proposed the flat-tailed horned lizard for listing as a threatened species in 1993 but withdrew its proposed listing in 2003, based in part on protections offered in the Flat-tailed Horned Lizard Rangewide Management Strategy, of which Reclamation is a member of the coordinating committee (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003). However, August 30, 2005, a Federal court ordered the Service to propose the flat-tailed horned lizard as threatened, requiring Federal agencies to treat the species as if it were listed under ESA.

The purpose of the management strategy is to provide a framework for conserving sufficient habitat to maintain several viable populations of the horned lizard

throughout its range. As part of this effort, five management areas (MA) were designated as core areas for maintaining self-sustaining populations. In addition, the management strategy designed actions in the Coachella Valley that included managing habitat areas that are capable of maintaining self-sustaining populations of the species by working with agencies and organizations in finalizing the CVMSHCP/NCCP. Outside the designated MAs, the management strategy requires cost-effective mitigation and compensation for impacts on flat-tailed horned lizards. Mitigation and compensation guidelines are discussed in the management strategy (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003).

Coachella Valley Fringe-Toed Lizard This endemic species occurs only on active sand dunes and their stabilized margins in the northern Coachella Valley. Most of these lizards exist inside three protected areas of the Coachella Valley Preserve System: Thousand Palms, Willow Hole, and Whitewater River. These preserves represent an estimated 2 percent of the species original range (LaRoe et al., 1995). A few scattered pockets of windblown sand along the northern fringe of the Coachella Valley also support low densities of this lizard.

High winds funneling through the San Gorgonio Pass on the northwestern end of the Coachella Valley create the areas of blow sand occupied by the species. Originally, about 200 square miles of the Coachella Valley floor and an additional 70 square miles of peripheral areas were covered with loose, windblown sand. Development has fragmented and eliminated habitat; remaining habitat is limited to north of Interstate 10 in the study area. Fortunately, human development has not severely affected the sand source and its path to the preserves (LaRoe, et al., 1995). However, sand depletion during droughts may create periods of degradation to the lizard's habitat (Griffiths, 2002).

The Coachella Valley fringe-toed lizard's adaptations to living in loose sand include the ability to "swim" through the sand (i.e., running across the sand surface at high speed, diving into the sand, then moving short distances below the sand surface). Small, rounded scales make the lizard's skin very smooth and reduce the friction of its body against the sand, which facilitates living in the sand. Its fringed toes increase its mobility in sand.

Threats to Coachella Valley fringe-toed lizard habitat include direct loss or degradation of habitat and the processes that sustain blow sand deposits. Habitat is lost when human development replaces suitable with unsuitable habitat. Habitat is degraded by OHV abuse, illegal dumping, and invasive plants. Processes that drive the aeolian sand system are disrupted if floodwaters are blocked or redirected from the sorting area—if barriers are created that block the movement of wind and its sand load between the sorting area and the habitat. Other impacts are from roads, feral pets, and collecting for pets. These activities increase mortality of fringe-toed lizards, especially around the perimeter of a

habitat patch or close to human development and recreation areas (Coachella Valley Associations of Governments, 2004).

Birds

Burrowing Owl This species is distributed in open country throughout the Central and Western United States, central Canada, Mexico, and the drier regions of Central and South America. Within the Coachella Valley, small numbers of burrowing owls are scattered in open desert areas, edges of agricultural fields, fallow fields, and along irrigation dikes and levees. The burrowing owl is associated with ground squirrel burrows and areas away from intense human activities. It often uses the same burrow for several years for nesting and cover. Besides abandoned mammal burrows, this owl also commonly uses old pipes, culverts, or other debris that simulates a hole in the ground.

In some years, there may be an influx of burrowing owls wintered in the Coachella Valley. However, most observations are from the spring and summer, indicating the presence of a breeding population.

The burrowing owl is most active during the early morning and evening hours. It preys on large insects, small rodents, small birds, reptiles, amphibians, fish, scorpions, and other small prey. It uses fence posts or utility wires for hunting perches.

The key threat to the burrowing owl is loss of habitat on the edges of agricultural and in rural areas. The owl is heavily preyed on by domestic cats and dogs or is killed by vehicles on rural highways while foraging at night. Along canal systems, the burrowing owl can be disturbed or displaced by maintenance activities along dikes and levees and by poisoning from pesticide use or rodent poisoning campaigns. Burrows can be destroyed or nesting territories disrupted from OHV use and illegal trash dumping (Coachella Valley Associations of Governments, 2004).

Southwestern Willow Flycatcher This neotropical migrant songbird breeds exclusively in riparian habitats with dense vegetation near surface water. Preferred nesting vegetation is Sonoran cottonwood-willow and saltcedar. Its summer range includes much of the desert southwest in southern California, primarily in Kern, San Diego, San Bernardino, and Riverside Counties. Its breeding range also includes southern Nevada, Arizona, New Mexico, Utah, western Texas, and possibly southwestern Colorado. It is reported as a breeding bird in Mexico, extreme northern Baja California, and Sonora. It winters in Mexico and Central America.

The only confirmed breeding record in the Coachella Valley is in Mission Creek (Coachella Valley Associations of Governments, 2004). Suitable breeding habitat is suspected in several riparian areas with adequate vegetation structure and surface water. Reclamation parcels contain two small riparian areas that are probably too small to be suitable for breeding. However, the migrating Southwestern willow flycatcher and other migrating songbirds could use these two areas in the spring and fall en route to and from breeding areas. In addition, migrating birds may use mesquite hummock and desert dry wash woodland for resting and foraging.

Least Bell's Vireo, Yellow Warbler, Yellow Breasted Chat, and Summer Tanager These neotropical migrant songbirds breed in riparian habitat along streams in the canyons surrounding the Coachella Valley. It is possible that the Reclamation parcels that support two small riparian areas could be suitable for breeding by one or a few individuals of these species or other riparian obligate birds. These two areas are probably used by these species during migration in the spring and fall en route to and from breeding areas. In addition, migrating birds may use mesquite hummock and desert dry wash woodland for resting and foraging.

Gray Vireo This neotropical migrant songbird breeds at mid-elevations in the mountains surrounding the Coachella Valley in pinyon-juniper and chaparral vegetation at higher elevations than Reclamation parcels. Migrating vireos probably use cottonwood-willow oasis, mesquite hummock, and desert dry wash woodland for resting and foraging.

Crissal Thrasher This medium-size, ground-dwelling songbird occurs in the Coachella Valley in cottonwood-willow riparian areas, saltcedar, desert saltbush scrub, and mesquite hummock areas. It is often associated with sandier soils and often occurs in the desert-agricultural interface. Its range includes the desert southwest from southeastern California to western Texas. This species was once a fairly common permanent resident in mesquite and densely vegetated wash woodlands in the Imperial and Coachella Valleys and along the entire length of the Colorado River Valley in California (Grinnell and Miller, 1944). Today, the Imperial and Coachella Valley populations have been reduced dramatically by removal of mesquite and conversion of desert to agricultural fields. Small, localized populations are scattered elsewhere in the Sonoran and Mojave Deserts.

Le Conte's Thrasher Le Conte's thrasher is an uncommon songbird of the deserts of the American southwest and northwestern Mexico. It occurs in the western and southern San Joaquin Valley, upper Kern River Basin, Owens Valley, Mojave Desert, and Colorado Desert (Grinnell and Miller, 1944). Densities even in optimum habitat are five pairs or less per square mile (Sheppard, 1970), an extremely low density for any songbird.

Its typical habitat consists of sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills supporting saltbush, cholla cactus, and other well scattered shrubs. The ground cover in its preferred habitat is sand with sparse cover, sometimes consisting of patches of grasses and annuals forming low ground cover. It seems to avoid habitat dominated by creosote bush. It also occupies dry desert wash woodlands traversing more level terrain with associated larger saltbush and other desert shrubs. It also uses the vegetated margins of large, rolling sand dunes. Le Conte's thrasher builds its nests in dense and thorny shrubs and cholla cactus.

Agriculture and urban development have eliminated much undisturbed habitat throughout much of its range.

Mammals

Southern Yellow Bat This species occurs in extreme southeastern California, southwest to Texas, and in the northwestern portion of Mexico, including Baja California. Because it roosts primarily in palm trees, its range appears to be expanding due to the use of palm trees for landscaping. The yellow bat probably occurs throughout the Coachella Valley in fan palm oases and in residential areas with untrimmed, introduced palm trees (Coachella Valley Associations of Governments, 2004). There is no population estimate for the Coachella Valley. During Reclamation surveys in September 2004, yellow bats were detected in Reclamation parcel T (biological inventory parcel 9) near Toro Canyon. They were also detected in relative abundance in the control area at the Coachella Valley Preserve.

To maintain this population in the Coachella Valley, it is necessary to protect the fan palm groves and maintain dead palm fronds on landscaped trees. Cutting and pruning in the spring before the young bats can fly could impact reproduction.

Palm Springs Round-Tailed Ground Squirrel This subspecies of the round-tailed ground squirrel occurs in the Coachella Valley associated with sandy substrates. During Reclamation's biological inventory, this species was observed in sand habitat in parcel I and near parcel G (biological inventory parcels 26, 27, and 37).

The Palm Springs ground squirrel is typically associated with sand fields and dune formations, although it does not require active blow sand areas (Coachella Valley Associations of Governments, 2004). It often occurs where sand accumulates at the base of large shrubs that provide burrow sites and adequate cover. It apparently is common in mesquite hummock and active sand field habitat at the east end of the Indio Hills. It also may be found in localized sandy areas in creosote bush scrub, desert saltbush, or desert wash woodlands that supports herbaceous growth.

The Palm Springs ground squirrel occurs in small colonies widely scattered in suitable sandy habitats. It most often excavates burrows at the base of a large shrub. In winter, it remains in its underground burrow for much of the time.

Habitat of the Palm Springs ground squirrel in the Coachella Valley has been lost as result of urban and agricultural development, including the loss of mesquite hummocks due to lowered water tables, OHV use, and invasive plants. While the Palm Springs ground squirrel does not require active blow sand areas, maintaining its habitat will depend on protecting ecosystem processes associated with sand dunes. (**Photograph 5.5** shows mesquite hummocks and stabilized sand fields/dunes.)

Photograph 5.5 – Mesquite hummocks and stabilized sand fields/dunes on east side of Coachella Valley are potential habitat for several special status species.

Palm Springs Pocket Mouse This is one of seven subspecies of *Perognathus longimembris*, the "silky pocket mice" that occur in southern California. This subspecies occurs in the Coachella Valley from the San Gorgonio Pass area south. Its habitat consists of gently sloping topography, sparse to moderate vegetative cover, and loosely packed or sandy soils.

According to the survey results of Dodd (1999), the highest densities of this pocket mouse occur at the western end of the study area, with lower densities farther east (Coachella Valley Associations of Governments, 2004).

The pocket mouse is nocturnal, solitary, and generally exhibits strong intraspecific aggression (Dodd, 1999). It spends the day in a complex burrow system. Apparently, its reproductive productivity depends on availability of annual vegetation and is probably greatly affected by drought (Coachella Valley Associations of Governments, 2004).

Peninsular Bighorn Sheep This sheep occurs at elevations below about 4,620 feet in the Peninsular Range, which includes the lower slopes of the Santa Rosa Mountains on the west side of the Coachella Valley. The population has apparently decreased from hundreds of thousands to less than 400 due to habitat loss and fragmentation, disease, and predation (Coachella Valley Associations of Governments, 2004). The population in the Coachella Valley is restricted to a narrow band of habitat that includes canyon bottoms, alluvial fans, and steep slopes. Residential developments, golf courses, and other developments in or near their habitat have created several factors leading to displacement and mortality, including plantings of plants that are toxic to Peninsular bighorn sheep. Reclamation parcels 1, 2, 4, 5, 6, 7, 8, and 9 (N, R-U) are adjacent to, or within the boundaries of, the Santa Rosa Management Area, managed specifically for this species. These parcels serve as a buffer between Peninsular bighorn sheep habitat and the current and future developments. (See **photograph 5.6**.)

Photograph 5.6 – Reclamation lands (parcel Q) bordering Lake Cahuilla Park serve as a disturbance buffer between recreation and residential development and Pennisular bighorn sheep habitat on the adjacent slopes of the Santa Rosa Mountains.

Environmental Consequences

Reclamation would conduct ESA compliance and consultation with the Service before implementing any proposed land uses and developments. If necessary, field surveys would be conducted to determine habitat suitability presence/ absence of special status species, and a biological assessment focusing on federally listed species would be prepared. The level of detail in the following discussion of impacts is programmatic and general.

Potential borrow pit/stockpile sites would be retained within parcels B-R on the east side of the Coachella Valley adjacent to the Coachella Canal. When these sites are used, excavation of borrow material would result in net loss of habitat; displacement; and mortality of special status species associated with creosote bush shrub, desert saltbush scrub and/or dry desert wash woodland habitats. These species include Orocopica sage, flat-tailed horned lizard, burrowing owl, Crissal thrasher, LeConte's thrasher, and Palm Springs ground squirrel. Before any new excavation activities, Reclamation would conduct surveys and implement mitigation and compensation for the flat-tailed horned lizard, as specified in the Flat-tailed Horned Lizard Rangewide Management Strategy, (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003). The action alternatives would include early initiation of compliance for those sites that may require borrow activities in short-notice emergency situations.

Open space recreation would be provided in portions of parcels A, B, C, D, E, F, K, R, S, and T, which could result in relatively minor disturbances to special status species (compared to developed recreation facilities and trails). However, the degree and extent of disturbance could increase with the anticipated population growth and demand for recreation.

All action alternatives would include the initiation of a comprehensive weed control program and rehabilitation of infested habitat. This would greatly benefit suitable habitat for special status species, especially in degraded sand habitats.

Alternative A

Under the No Action Alternative, Reclamation lands would be managed and considered for development on a case-by-case basis, as under current conditions. Although environmental and ESA compliance would be conducted for each development action, this alternative could result in sporadic land use planning with an incremental loss and continued degradation of habitat for special status species. Because of lower levels of coordinated long-term planning and possible delays or deficiencies in protection of suitable habitat, such habitats more likely would degrade into lower value as a result of increasing recreational use and development in light of increasing population growth and development pressure.

Unregulated OHV use and illegal dumping would continue and probably increase. Without an overall strategy for protecting intact and higher value habitat blocks, fragmentation, degradation, and mortality would increase.

This alternative would not include a comprehensive weed control program. The invasion and spread of noxious weeds would continue to affect potential habitat for special status species, especially sand habitat.

The current level of agency coordination would continue. There would be fewer opportunities to cooperate with other agencies to cooperatively develop and implement habitat and wildlife inventory and management projects.

Alternative B

The comprehensive land use strategy proposed for this alternative would emphasize protection and restoration of habitat for special status species. Developments that would adversely affect habitat would be discouraged. Future land use authorizations would be limited to those that could benefit special status species. Land uses that may affect special status species would be phased out, if feasible. Greater agency coordination with CDFG would occur through development of an inventory, monitoring, and protection plan for habitat for special status species.

Fewer adverse effects resulting from recreational OHV use would occur than under the No Action Alternative because OHV use would be eliminated, except for emergency situations. Areas with degraded habitat and reduced vegetation cover caused by unauthorized OHV use would be closed and rehabilitated. The proposed interpretive program would attempt to educate the recreational public about the unique plants and wildlife and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

Alternative C

The comprehensive land use strategy proposed for this alternative would emphasize recreation, community, and commercial development. Although protection would be given to special habitats where feasible, adverse effects would occur to vegetation and wildlife habitat in those locations where developments and access roads occur. Reclamation would conduct NEPA and ESA compliance for all developments, and mitigation would offset any impacts to special habitats, as outlined in “Environmental Commitments.”

Because OHV use would be restricted to designated areas, habitat would be better than under the No Action Alternative. Interpretive signs designed to educate the public on ways to avoid direct impacts would be posted. However, some areas could experience habitat degradation from continued or increased OHV use in

designated areas. Mortality to wildlife could occur in OHV areas, especially to those species that rely on freezing and blending into the environment rather than fleeing oncoming vehicles.

Changing recreation from open space to developed sites in portions of some parcels could affect sand habitat of the federally listed Coachella Valley milkvetch and Coachella Valley fringe-toed lizard. Other special status species associated with sand in this area could be the Coachella Valley giant sand-treader cricket, Coachella Valley Jerusalem cricket, flat-tailed horned lizard, crissal thrasher, Palm Springs round-tailed ground squirrel, and Palm Springs pocket mouse

Developed recreation sites in parcels A, B, C, D, E, F, S, and T could affect special status species associated with creosote bush shrub, desert saltbush scrub, and/or dry desert wash woodland habitats. These species include Orocopica sage, flat-tailed horned lizard, burrowing owl, Crissal thrasher, LeConte's thrasher, and Palm Springs ground squirrel.

Developed recreation sites in parcels O and P could direct or indirectly affect Peninsular bighorn sheep. Currently, habitat in these parcels on the west side of the Coachella Valley are either seasonally occupied by Peninsular bighorn sheep or serve as undeveloped buffer habitat in between occupied habitat to the west and encroaching developed habitat to the east.

Reclamation would conduct NEPA and ESA compliance for all developments, and mitigation would offset any impacts to special status species, as outlined in "Environmental Commitments."

Alternative D

The comprehensive land use strategy proposed for this alternative would be similar to Alternative A, along with limited development of recreation opportunities and facilities. In addition, protection and restoration of habitats for special status species would be a priority, while developments and land use authorizations that adversely affect habitat would be discouraged. Greater agency coordination with CDFG and the Service would occur by developing a habitat inventory, monitoring, and protection plan that would emphasize special status species.

Recreation developments could include construction of a limited number of multi-use trails using criteria to avoid impacts to special status species. If passive types of recreation in parcels E, K, R, and portions of S and T are encouraged, minor disturbances could increase. However, OHV restrictions, if enforced by such partners, would decrease the potential for more significant impacts

Fewer adverse effects resulting from recreational OHV would occur than under Alternative A, because OHV use would be eliminated, except for emergency

situations. Areas with degraded habitat and reduced vegetation cover from OHV primitive roads would be closed and rehabilitated, which would benefit several special status species, especially those associated with sand habitat. Interpretive programs implemented by qualified partners would attempt to educate the recreational public about special status species and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

As under all other alternatives, borrow pits could be established in parcels with potential to impact special status species, especially if they are in or adjacent to sand habitat. However, this alternative would provide a higher level of stabilization techniques to ensure that offsite impacts are avoided. In addition, unused or abandoned sites would be reclaimed and restored to natural habitat conditions.

Mitigation

No intensive surveys have been conducted for the special status species listed in table 5.5. However, during the reconnaissance-level inventory in April 2004, Reclamation biologists identified habitat within RMP lands that has potential to be suitable habitat for several species. The following lists general mitigation measures that would apply to projects that affect vegetation, wildlife, and special status species. In addition, management actions that protect and restore habitat are summarized.

- Prior to all proposed projects, site-specific NEPA and ESA compliance would be conducted. If potential habitat is identified in the affected environment, surveys would be conducted to ascertain presence/absence of special status species and to determine habitat quality, and detailed protective measures would be developed and implemented. At that time, assessment of the quality and quantity of the affected vegetation and general wildlife community would be determined.
- To the extent possible, surface-disturbing projects would be located outside of high-valued habitat and occupied habitat of special status species and be timed to avoid mortality. Prior to construction, a protection plan would be developed specific to the vegetation, wildlife, and special status species within or adjacent to the project area.
- Project work areas in and near habitat for special status species would be clearly marked to avoid impacts, and a biological monitor would work with construction personnel to ensure that all protective measures are implemented.

- Project proponents would develop a habitat restoration plan that includes collecting and replacing topsoil, preparing seedbeds, seeding with native plant species, weed control, erosion control, and regularly monitoring the effectiveness of such measures.
- Existing roads and previously disturbed areas would be used for travel and equipment storage to the maximum extent possible.
- If adverse effects remain after the project proponent has taken all reasonable onsite mitigation measures, compensation would be made for residual effects.
- In addition to measures listed above, any recreational site development would require measures to inform the public of the value of special status species and habitat as well as restrictions against collecting, harassing, and harming. Trail development would avoid direct impacts to occupied habitat.

Following are general natural resource management mitigation:

- High value vegetation communities and general wildlife habitat would be protected with such measures as signs, interpretation, fencing, OHV restrictions, road closures, and enforcement of dumping.
- A restoration plan would be developed that includes measures to control invasive plants, establish stands of native plants, repair OHV damage, clean up illegal dump sites, and conduct monitoring to determine restoration success.
- Measures would be developed to protect Peninsular bighorn sheep:
    - Identify key habitat and disturbance buffers
    - Restrict all developments in key habitats and allow only passive recreation use in adjacent buffer habitat
    - Implement seasonal closures if necessary and install interpretive signs
    - Formulate stipulations (poisonous plant restrictions) for land exchanges and recreational developments near key habitat
- Develop an invasive plant management plan that includes inventory, determination of control feasibility, integrated control of target species in selected areas, facilitation of research of experimental control methods, and long-term monitoring.

- Implement measures to protect and restore riparian oasis, which could include fencing, clean up of dump sites, surface water improvements (quantity and quality), cottonwood/willow plantings, and salt cedar control.

- Implement measures to protect and restore mesquite hummocks which could include fencing, cleanup of dump sites, surface mesquite plantings, and control of noxious weeds.

Residual Impacts

If adverse effects remain after the project proponent has taken all reasonable onsite mitigation measures, compensation would be made for residual effects.

Recreation

Affected Environment

Tourism has long been the most important industry in the Coachella Valley. Currently, an estimated 100,000 people work either in local hotels, restaurants, entertainment venues, or visitor attractions, while approximately 3.5 million people visit the Coachella Valley each year. However, the influence of tourism on the Coachella Valley's economy has been offset in recent years by the continuing development and expansion of other segments of the economy, along with the increase of permanent residents. Once considered primarily a tourism and retirement area, the Coachella Valley underwent tremendous change during the late 1980s, a trend that continues today. For example, in 1985, the median age in the valley was 64; however, with more families moving to the area, the median age dropped to 31.5 years in 2004 (The Desert Real Estate Report Web site <http://desertrealestate.com/desert>).

Demographics and Trends

This section presents a review of the demographics and trends that are likely to influence the demand for outdoor recreation in the Coachella Valley to facilitate a better understanding of the recreational resources found within region. The following discussion on demographics and trends affecting recreation is taken from the California Outdoor Recreation Plan 2002 (California State Parks, 2006).

One of the greatest challenges facing recreation service providers is the greatly increasing population. Fueled by births and immigration, California's population grew from a little less than 30 million to almost 34 million during the 1990s—an increase of almost 14 percent. This population growth is expected to continue, with the population projected to increase to 45 million by 2020. While most of California's population growth has occurred in its major metropolitan areas, such

as Los Angeles, San Diego, and the San Francisco Bay area, Riverside County and the Inland Empire is the second fastest growing region in the State, behind the Sierra foothills. California now has 58 cities with populations exceeding 100,000 and 15 cities with populations exceeding 200,000. In general, cities are getting larger, squeezing out the open spaces for parks and recreation and disconnecting the State's biological resources. California is now the second most urbanized State in the Nation, with 217 persons per square mile compared to the U.S. average of 79. It is projected that by the year 2020, California will have 291 persons per square mile.

Another demographic shift over the last few years relates to the quickly escalating ethnic and cultural diversity. Currently, there is no ethnic majority in the State, because the largest racial group (white) is less than 50 percent of the population. According to the U.S. Census 2000 data, Hispanic and Asian/Pacific Islander populations accounted for 61 percent and 27 percent, respectively, of California's growth in the last decade. Census date also showed that Hispanic population growth was driven mostly by natural increase (births) while Asian/Pacific Islander population increased mostly from immigration. Projections show that from 2000 to 2020, California's population of European descent will have grown only 4 percent while the Hispanic populations will have grown 58 percent, and the Asian/Pacific Islander population will have grown 55 percent. The African-American population is projected to grow 20 percent, and the American Indian population, 29 percent. Projections also show that by 2030, California's population mix will shift even further, when Hispanics will be the largest demographic group, comprising 43 percent of the State's population.

Age characteristics of California's population are also important to consider when looking at the recreational resources within the Coachella Valley. Currently, nearly one-third of the State's population is between 35 and 55 years of age. In 20 years, this group of "Baby Boomers" will be active seniors 55 to 75 years old, or twice the size of the current population aged 55 to 75. With life expectancy and good health increasing, researchers predict that seniors in the future will be more active and will stay active as senior citizens for a longer period of life than previous generations.

At the other end of the spectrum are the 27 percent of Californians who are under 18 years of age. According to the California Department of Finance, while the Nation's birth rates were flat during the 1980's, the birth rates in California rose sharply.

As California's population increases, the number of people at the lower end of the income scale is increasing at a disproportionately higher rate. Interestingly, research shows that people with lower incomes rely more heavily on public recreational facilities while people with higher incomes tend to enjoy nature more, value saving time, are willing to pay more to avoid waiting in line, and enjoy interpretation. While little is known about the recreation needs of people with

very low incomes, it is thought that access to recreational activities is an important issue because of lack of discretionary income, time, and transportation options for outdoor recreation. Much of their leisure revolves around television and activities close to home. Common barriers to participating in outdoor recreational activities include lack of finances, lack of transportation, lack of free time, and lack of information about recreational activities.

The use of existing recreation facilities in the Coachella Valley is heavy and continues to increase. As the stress of jobs, traffic, and urban noise increases, so does the need to escape. Traditionally, people use area parks and open space to seek refuge from the annoyances of urban life. In the wake of recent world events, tourism was expected to decrease in California but, in reality, the opposite has occurred as more Californians are choosing to vacation closer to home, traveling more within the State, and traveling more by car.

Outdoor recreation is important to Californians. In the study "Public Opinions and Attitudes on Outdoor Recreation in California in 1997," 98 percent of the respondents indicated that just being in the outdoors is an important part of enjoying their favorite activities. More than 80 percent of the respondents indicated that outdoor recreation was "important" or "very important" to their quality of life. The number of Californians who felt outdoor recreation was "very important" to their quality of life jumped from 44 percent in 1987 to 62 percent in 1997, when the last opinion poll was conducted (California State Parks, 1998).

Statewide, Californians spent approximately 2.2 billion days participating in outdoor recreation activities during 1997. Traditional recreation remains popular; and as more Californians take advantage of State, local, and Federal parks, the demand for recreational facilities will increase.

According to the Public Opinions and Attitudes Survey 1997, Californians spend the most time participating in activities that are less expensive, require less equipment, and need fewer technical skills (California State Parks, 1998). Californians' top 15 activities (by participation) were:

- Walking (recreation)
- Visiting museums, historic sites
- Use of open grass or turf areas
- Driving for pleasure
- Beach activities
- Visiting zoos and arboretums
- Picnicking in developed sites
- Trail hiking
- Swimming in lakes, rivers, or oceans
- Attending outdoor cultural events
- General nature and wildlife study
- Attending outdoor sports/events

- Camping in developed sites
- Swimming in outdoor pools
- Bicycling (on paved surfaces)

Nature study, including wildlife viewing, is particularly worthy of further consideration because it is one of the most popular activities that continues to increase in popularity according to the Public Opinions and Attitudes Surveys conducted in 1997, 1987, and 1992. In fact, this was one of the few activities that showed a trend in increasing popularity and public preference. Bird watching is perhaps the most important aspect of nature study. Nature study/wildlife viewing is a trend with important potential because it is a preferred activity by two very large future demographic groups—Hispanics and seniors.

Survey results also showed that more than 90 percent of Californians visited "nature-oriented parks and recreation areas" and "natural and undeveloped areas" at least once or twice per year but visited "highly developed parks and recreation areas" the most frequently. Twenty percent of the surveyed population visited these highly developed areas at least once per week. It is also interesting to note that about one-fourth of all Californians never visited any "private outdoor recreation areas and facilities" and more than half only visited a few times per year.

Public opinion surveys have also shown that there continues to be a high interest among Californians in a broad range of adventure activities such as mountain biking, scuba diving, kite surfing, and wilderness backpacking. Included in this group of activities are those that are perceived to be high risk, including rock climbing, bungee jumping, and hang gliding. Research suggests that this demand is from a variety of age groups including the Baby Boom generation, which continues to hike, mountain bike, kayak, and engage in other physically active, resource-based recreation.

Another emerging trend relating to the demand for recreation activities within the Coachella Valley is the rapid growth in the use of off-highway vehicles. According to the Public Opinions and Attitudes Survey on Outdoor Recreation, 1997, the use of off-road motorcycles, all-terrain vehicles, and dune buggies increased 30 percent between 1992 and 1997. The number of registered off highway vehicles in California increased 108 percent between 1980 and 2001, while the number of street licensed four-wheel drive vehicles increased 74 percent between 1994 and 2001.

Not all recreation activities are increasing in popularity. Hunting and fishing, for example, continue to decline. According to the U.S. Fish and Wildlife Service, interest in hunting and fishing among young people has been in decline since the early 1990s. Between 1991 and 2001, angler participation rates among those aged 18 to 24 dropped from 20 percent to 13 percent. Hunting has similarly declined, with participation in the 18 to 24 age group dropping from 9 to 6 percent in the

last 10 years. Baby Boomers often grew up participating with their families in these activities, but their children grew up with computers and video games. The Service also found that Blacks and Hispanics are far less likely to hunt and fish than the general population.

Surveys conducted in California have also addressed latent or unmet demand for recreational activities and facilities. The following 13 activities are perceived as having a high latent demand in the State of California:

- Recreational walking
- Camping in developed sites
- Trail hiking
- Attending outdoor cultural events
- Visiting museums, historic sites
- Swimming in lakes, rivers, or oceans
- General nature, wildlife study
- Visiting zoos and arboretums
- Camping in primitive areas
- Beach activities
- Use of open grass or turf areas
- Freshwater fishing
- Picnicking in developed sites

Recreation Within the Region

Lake Cahuilla Recreation Area Lake Cahuilla is the terminal reservoir of the Coachella Canal. Lake Cahuilla was constructed in 1969 to serve as storage for a reserve supply of irrigation water needed chiefly in emergency periods when water is used to offset weather conditions. Located between Avenue 56 and Avenue 58, west of Jefferson Street against the foothills of the Santa Rosa Mountains on the west side of the Coachella Valley, the lake is three-quarters of a mile long and half that wide at its widest point. The lake is between 11 and 12 feet deep and contains approximately 1,500 acre-feet of water. At the time of its construction, Lake Cahuilla was the largest soil cement-lined reservoir in the world. Currently, the Riverside County Parks Department has an agreement with Reclamation and CVWD for development of the lake and surrounding grounds for general recreational use by the public on a fee basis.

There are 71 full-service campsites at Lake Cahuilla consisting of parking spurs, picnic tables, use areas, fire rings, and barbecue grills. Most sites within the main campground have utilities, although 10 sites do not. A full-service restroom offers pay showers for guests. A dump station is also available for disposal of recreational vehicle grey water. There is also a primitive campground with 34 sites that offers space for group camping or campsites for campers not wanting electric and individual site water. Each site has a fire ring and picnic table. Nine water spigots serve the primitive camping area. (See **photographs 5.7 and 5.8**.)

Photograph 5.7 – Entrance to Lake Cahuilla Recreation Area.

Photograph 5.8 – Lake Cahuilla campground receives heavy recreational vehicle use.

A swimming pool is near the park entrance. Bicycles and small water craft are also available for rent through an onsite concessionaire. Boat launching is possible from numerous areas along the shoreline. Boating use of Lake Cahuilla is restricted to non-motorized use only. On the north side of the lake, several shelters have been dispersed to offer shade for anglers. The park also offers equestrian facilities consisting of corrals and water spigots for those wanting to ride on trails leading out of the park.

Fishing is particularly noteworthy at the park. Anglers are charged a modest daily fee, with the majority of the fee going towards restocking the lake with catchable size fish. Species stocked include bass, trout, and catfish. Frequently, respectable-sized fish are stocked attracting anglers looking for larger-sized fish.

Lake Cahuilla Park is open year-round; however, from May through October, the park is closed Tuesday, Wednesday, and Thursday. Day use is allowed from sunrise to sunset, while the main gate at the campground is locked at 10 p.m. and reopened at 6 a.m.

Coachella Valley Parks and Recreation District Overall, CVRPD is the largest recreation service provider in the Coachella Valley. Formed in 1950, CVRPD was developed to provide recreational facilities in the Coachella Valley area. CVRPD contains approximately 1,800 square miles.

Currently, CVRPD has a lease agreement with Reclamation (No. 1-07-34-L1222) to develop three new parks:

> *Desert Regional Park:* This new 280-acre regional park under development will be the future home of the Coachella Valley Mounted Rangers. The new park will be located on Jackson north of Interstate 10.
>
> *Coral Mountain Regional Park:* This new 620-acre regional park will eventually feature nature, hiking, biking, and equestrian trails; picnic areas; and a nature center. The park will be located on Avenue 58, adjacent to Lake Cahuilla. Initial planning was scheduled to have begun in January 2005.
>
> *Canal Regional Park:* This new 260-acre park will feature a radio-controlled model airplane airport. The model airplane airport is presently in operation; however, most other aspects of the park have yet to be developed. The park is located at Avenue 54 and Filmore Street. (**See photograph 5.9**.)

The lease with Reclamation authorizes CVRPD to develop, administer, operate, and maintain the three regional parks while ensuring that land use and administration of the recreation areas will conform to applicable Federal laws, orders, regulations, and policies. Additionally, under the dictates of the lease,

Photograph 5.9 – Model air park is managed by CVRPD.

CVRPD is to coordinate with CVWD and Reclamation any administration, operation, maintenance, and development activities that have the potential to affect CVWD or the Federal Government.

Cities of Palm Desert, La Quinta, Coachella, Indio, Indian Wells Most cities within or adjacent to the study area maintain some aspect of a parks and recreation program. All city parks and recreation programs are not identical but do share certain features and so are discussed together. Generally, each city strives to plan and provide for a diverse and integrated parks and recreation system, which creates active and passive recreational amenities for residents that are responsive to the needs and standards of the city.

Generally, cities within the planning area classify their parks using the National Recreation and Parks Association's acreage standards. Table 5.9 presents the standards in effect for most of the Coachella Valley.

Table 5.9 – Standards for recreational areas

Type of park area	Acres per 1,000 population	Ideal site size	Radius of area served
Mini park	0.25	0.5 – 1 acre	0.25 mile
Neighborhood park	1.0	5 – 10 acres	0.25 – 0.5 mile
Community park	5.0	30 – 50 acres	0.5 – 3 miles

Following are descriptions of the types of parks in the Coachella Valley:

Mini Parks: Mini-parks or pocket parks are the smallest park classification and are generally used to address limited or isolated recreational needs. They are generally developed in association with new housing developments and are sometimes referred as "tot lots" or "sitting parks." Recreation planners generally consider mini-parks as specialized facilities that serve a concentrated or limited population, or a specific group such as very young children or senior citizens. Generally mini-parks are located inside a neighborhood, within or in close proximity to apartment complexes, townhouse developments, senior housing, or other developments that require recreational space.

Neighborhood Parks: Neighborhood parks are, for most cities within the study area, the basic unit of the park system. Neighborhood parks are intended to meet the active and passive recreation needs of nearby residents and serve as a social focus of the neighborhood. This type of park is typically planned to be geographically centered within the neighborhood and with walking and bicycle access through linkages to trails and bicycle paths. Neighborhood park facilities typically include such features as picnic areas, playground equipment, hard court areas, multi-purpose play fields for informal games, bicycle racks, and vehicular parking. Neighborhood parks may also contain special landscaping and public art.

Community Parks: Community parks provide active and passive recreation opportunities on a larger scale than neighborhood parks. Community parks typically include fields for organized baseball, softball, soccer, and football, and often tennis complexes and large swimming pools. A community recreation building may be provided for indoor sports as well as for educational and cultural activities. Passive recreational activities may include picnic areas, unique landscaping, formal gardens, and open space areas.

Regional Parks: Regional parks refer to recreational areas and facilities that are used on a valley-wide basis. They may have the same size specifications and provide basically the same amenities as a community park but generally offer more diverse facilities and recreational opportunities. For that reason, they attract users from surrounding areas and cities. In addition, regional parks generally sponsor planned events or activities that appeal to a wide range of people. Regional parks may also include natural resource areas that provide passive recreational opportunities in a more natural environment. The qualities that differentiate regional parks from natural resource areas are open space and conservation areas where "use" is incidental to their conservation and protection.

Most cities within the study area also maintain a trail system. Generally, there are two types of trails applicable to the cities trail systems—urban trails and open space trails. Urban trails serve as alternative transportation routes through communities linking residential neighborhoods with central areas. Open space trails function as an access to natural and scenic resource areas and are generally used for hiking, horseback riding, and mountain biking. Together urban and open space trails create a multi-use trail system that accommodates all types of users and provides access to a variety of areas.

Environmental Consequences

Alternative A

Under Alternative A, Reclamation would continue to manage recreation and public activities within the study area according to its ability and authority. If Reclamation receives additional authority to impose and enforce additional rules and regulations or policies, Reclamation would do so, as necessary and appropriate. No new recreation development planning would occur, and no new recreation facilities would be expected to be constructed within the study area. Future demand for use of open space for recreation within the study area would not be met.

Existing management practices would allow dispersed and uncontrolled recreation use to continue. Only minimum basic visitor health and safety services would be provided. As a result, increased damage to the desert environment from undefined and controlled OHV use and increased trash and dumping would occur, especially as the region's population continues to increase and more people seek recreational activities within the study area. Additionally, for those seeking solitude and nature study, the quality of the recreational experience most likely would decline due to increasing encroachment and undefined public access to the study area to pursue various unmanaged activities.

Also under the No Action Alternative, opportunities to interpret the desert environment to further the appreciation and protection of those resources would go unrealized. Multi-use trails would not be developed, meaning that demand for that type of use would go unmet.

Alternative B

Under Alternative B, public demand for open spaces and natural areas for outdoor recreation activities would not be met because the public would be restricted to existing public roads. Under this alternative, recreation facilities such as day use areas, trails, and OHV areas would not be constructed, and the demand for these facilities would not be accommodated. Additionally, because OHV use would be eliminated, except for emergency situations, OHV users would be displaced to

other areas, placing pressure on these areas. Recreational access within the study area would be limited, so nature study enthusiasts and bird watchers also could be displaced.

Implementation of this alternative would also mean that the need and demand for community recreation areas (e.g., soccer fields, ball fields) and open space for relaxation and exercise would also go unmet. As the populations of the cities and communities within the study area grow, there will be a corresponding demand and need for areas to accommodate these important social needs.

One advantage of this alternative over Alternative A is that environmental interpretation would be used to communicate positive environmental stewardship messages to promote appreciation and ethical use of the desert natural and cultural resources.

Alternative C

Implementation of this alternative would enhance the public's access to recreation activities and supporting facilities. The comprehensive land use strategy proposed for this alternative would emphasize recreation, community, and commercial development.

Under this alternative, a comprehensive OHV plan would be developed; and officially designated OHV use areas would be established. Public motorized access would be limited to OHV use areas and/or designated roads and trails.

Urban recreation opportunities, such as golfing, tennis, baseball, and biking, also would be accommodated within the study area. Implementation of this alternative would best meet the needs of the cities and communities within the study area by making available lands for open spaces and recreation facilities for their increasing populations.

Also, under this alternative, non-motorized, multi-use trails would be constructed throughout the Coachella Canal Area using strict development criteria to ensure that trails and trail users do not adversely affect natural resources, wildlife, critical habitat, or Project features. Portions of trails would be paved or hardened, and other portions would be designed to accommodate a variety of uses, such as hiking, biking, and horseback riding.

By maximizing recreation facility development and providing increased recreational opportunities, carrying capacity limits may reach the point that user conflicts increase. The quality of the recreation experience may, therefore, be diminished for some users. As visitor use increases, visitor health and safety may be compromised by overcrowding, competition for available space, and overuse and abuse of existing facilities and resources.

Some users who desire a more unconfined and uncontrolled recreation experience may be displaced to other areas outside the study area, but the loss of those users would be offset by greater numbers of visitors attracted to increased opportunities and facilities.

As OHV use increases within the study area, the risk for adverse impacts to cultural and natural resources also increases.

By providing signs, sanitary facilities, security, and improved access, the health and safety of visitors would be protected. By defining use through the development of facilities and designated use areas, user conflicts should decrease.

Under this alternative, a comprehensive interpretive plan would be developed. Therefore, interpretation and educational information would be more readily available, making for a more enjoyable recreation experience.

Alternative D

Alternative D provides for limited development of recreation facilities and opportunities (i.e., fewer facilities and opportunities than under Alternatives A or B but more than under Alternative B). Alternative D also includes management actions to protect/conserve natural resources within the study area.

Eliminating OHV use, except for emergency situations, would displace users to other areas, placing pressure on those areas.

A limited number of non-motorized, multi-use trails would be developed using strict development criteria to ensure that trails and trail users do not adversely affect natural resources, wildlife, critical habitat, or Project features.

The recreation experience for people seeking solitude and immersion in natural settings would be better than under Alternative C, but not as positive as under Alternative B. Conversely, under this alternative, the emerging need and demand for urban recreation opportunities would go somewhat unmet on Reclamation managed lands.

Carrying capacity limitations would be easier to manage and maintain under Alternative D than under Alternative C, and fewer conflicts would occur between differing user groups competing for available space. However, because of the limited development of recreation facilities, public demand for these facilities may not be met; and conflicts may develop among users competing for use of the same limited space.

Opportunities to interpret natural and cultural resources within the study area to promote greater appreciation, ethical use, and understanding of the desert habitat would be the same as under Alternative B.

Mitigation

Under Alternatives C and D, recreation facility development will complement the surrounding landscape as much as practical and follow strict design and construction criteria, guidelines, and standards. Carrying capacity limits and user demand will be properly determined before major facility developments occur.

Regulatory and informational signage will be posted throughout the area, informing the public of the rules and regulations governing the use of the federally owned lands within the study area.

Residual Impacts

No residual impacts have been identified.

Regional Economy

Affected Environment

The study area is located in the central portion of Riverside County, California, just northwest of Salton Sea. As shown by census data from 1990 and 2000, the county has experienced considerable economic growth in the past decade, and its economy is diverse and growing. Major urban areas within the study area include Indio, Coachella, La Quinta, and Mecca. The study area also supports a large amount of irrigated agriculture, which is served by the Coachella Canal of the All-American Canal system.

The study area is in the southern potion of the Coachella Valley in Riverside County. A description of the Coachella Valley economy comes from Appendix N of the *Santa Rosa and San Jacinto Mountains National Monument Proposed Management Plan and Final Environmental Impact Statement* (BLM, 2003a):

> "Agriculture was the Coachella Valley's dominant industry during the first half of the twentieth century. The region's main staple, the date palm, was introduced at the turn of the century. . .and the industry soon expanded to include the cultivation of grapes, citrus, other fruit, and vegetable crops.
>
> As early as the 1920's, however, hotels, restaurants, country clubs, and casinos began to emerge in the upper Coachella Valley, especially in the Palm Springs and Cathedral City areas. By the 1930's, the character of the region had been transformed toward a budding resort tourist industry, with marketing and construction of weekend homes throughout the valley. The resort industry is expected to grow in the future."

Another area of economic development is the transportation sector in the Coachella Valley. See "Transportation" for a detailed discussion.

Total Personal Income and Earnings

Table 5.10 presents total personal income and earnings by industrial sector for Riverside County for 1990 and 2000. The data were derived from several sources: Bureau of Economic Analysis, U.S. Census Bureau, and California Department of Finance (CDF). One limitation of this analysis is that many sources provide data only at the county level, and the economic activity in different portions of Riverside County can vary greatly. Some information based on census data was obtained for the major urban areas within the study area. The economic environment for Riverside County is presented for approximately a 10-year period. Economic data for the major urban and agricultural areas is based on the latest information available.

Table 5.10 – Total personal income and earnings, Riverside County, 1990, 2000 ($ millions)

	1990	2000
Total personal income	$22,320.0	$37,015.0
Earnings by industrial sector		
Farm	$354.3	$253.4
Agriculture, service, forestry, fishing, other	$285.0	$409.1
Mining	$29.5	$35.3
Construction	$1,406.0	$2,477.3
Manufacturing	$1,193.4	$2,474.3
Transportation, utilities, and communication	$639.2	$1,011.6
Wholesale trade	$424.3	$917.3
Retail trade	$1,337.0	$2,521.6
Finance, insurance, and real estate	$423.3	$1,094.0
Services	$2,757.6	$5,255.5
Government: Federal and military	$391.7	$509.6
Government: State and local	$1,911.1	$3,617.9
Total earnings	$11,152.40	$20,576.90

Total income increased approximately 66 percent from 1990 to 2000, or an average annual increase of about 5 percent. Total earnings increased by about 85 percent, or an annual average increase of about 6 percent. Table 5.6 also

presents earnings by industrial sector. In 1990, services (16.7 percent), Federal and military government (3.5 percent), State and local government (17 percent), and construction sector (12.6) percent had the largest shares of total earnings for Riverside County. In 2000, the largest sectors for earnings were services (26 percent), government (20 percent), and retail trade (12.3 percent).

Per Capita Income and Employment

Employment in the Coachella Valley increased from 70,664 jobs in 1991 to 111,919 jobs in 2001, a 58-percent increase over the decade or an average annual increase of about 5 percent. The major employment sectors in the Coachella Valley for 2002 were retail trade and services (21 percent of total employment), hotel and amusement (15 percent), and agriculture (11 percent).

Census data for per capita income and employment were available for Indio, La Quinta, Coachella, and Mecca for 1990 and 2000. Table 5.11 presents these data.

La Quinta has the highest median household and per capita income, followed by Indio, Coachella, and Mecca. Tourism and recreational resorts in the La Quinta area may be the cause for these higher income levels. For the Coachella and Mecca areas, the lower income levels may be due to low income in the agricultural sector. The change in income from 1990 to 2000 follows a similar pattern: La Quinta had the largest increase (38 percent) in median household and per capita income, followed by Indio (33 percent), Coachella (23 percent), and Mecca (5 percent).

The city of Indio had the greatest number of jobs of the four communities, followed by La Quinta, Coachella, and Mecca. Mecca had the greatest increase in employment from 1990 to 2000 (170 percent), mostly in agriculture, followed by La Quinta (93 percent), Coachella (23 percent), and Indio (18 percent).

Employment by industrial sector can aid in explaining the possible reasons for the change in total employment over time. For Indio, the sectors with the greatest employment were services (52 percent), retail trade (12.1 percent), and construction (12 percent). Between 1990 and 2000, employment in agriculture declined by about 8 percent and employment in retail trade declined by 6.5 percent, while employment in construction and services increased (2 percent and 15 percent).

For La Quinta, the sectors with the greatest employment in 2000 were services (52 percent), retail trade (11.3 percent), and finance, insurance and real estate (10 percent). Between 1990 and 2000, employment in agriculture declined by about 3 percent; employment in retail trade declined by about 5 percent; and employment in construction declined by 4 percent, while employment in services and public administration increased by 13 percent and 5 percent, respectively.

Table 5.11 – Employment and income 1990 and 2000 for Indio, La Quinta, Coachella, and Mecca

	Indio		La Quinta		Coachella		Mecca	
	1990	2000	1990	2000	1990	2000	1990	2000
Income								
Median household income	$25,976	$34,624	$39,572	$54,552	$23,218	$28,590	$21,829	$22,973
Per capita income	$9,224	$13,525	$19,678	$27,284	$5,760	$7,416	$5,271	$6,389
Employment (16 years and over)								
Total	15,086	17,801	5,368	10,347	6,022	7,412	741	2,000
By industry								
Agriculture[1]	2,175	1,001	223	106	1,856	1,429	454	1,046
Construction	1,506	2,115	691	889	393	690	52	185
Manufacturing	554	715	398	543	337	295	19	27
Wholesale trade	469	401	173	207	239	422	24	90
Retail trade	2,804	2,156	841	1,165	795	784	31	150
Transportation, communication, and utilities	750	940	269	501	296	199	5	30
Finance, insurance, and real estate	516	704	531	1,018	163	115	1	12
Services[2]	5,635	9,186	2,105	5,361	1,834	3,343	154	460
Public administration	677	583	137	557	109	135	1	0
Total	15,086	17,801	5,368	10,347	6,022	7,412	741	2,000

[1] Agriculture employment consists of agriculture, forestry, fishing and hunting, and mining.
[2] Services employment is an aggregation of various service-related sectors in the area.

For Coachella, the sectors with the greatest employment in 2000 were services (45 percent), agriculture (19 percent), and retail trade (11 percent). Between 1990 and 2000, employment in agriculture declined by about 12 percent; employment in retail trade declined by about 2 percent; and employment in transportation and finance, insurance, and real estate declined by 2 percent, while employment in services and public administration increased by 15 percent and 3 percent, respectively.

For Mecca, the sectors with the greatest employment in 2000 were agriculture (52 percent), services (23 percent), and construction (9 percent). Employment in industry increased substantially between 1990 and 2000.

Irrigated Agriculture

Irrigated agriculture has a large presence in the Coachella Valley and in the study area. The Boulder Canyon Project Act of December 21, 1928, authorized construction of the All-American Canal system to deliver irrigation water to Imperial and Coachella Valleys and a distribution system in Coachella Valley. The distribution system was transferred to CVWD in July 1954. The facilities, operated and maintained by CVWD, include 74 miles of the Coachella Canal. The distribution system is capable of serving 78,530 irrigable acres.

In 1994, there were a total of 58,192 irrigated acres in CVWD with a gross crop value of $324.4 million. In 2003, there were a total of 68,834 irrigated acres (includes double cropping) with a gross crop value of $550.7 million. Table 5.12 displays the crop acreage and value by major crop.

Table 5.12 – 2003 crop production, Riverside County

Major crops	Acres	Crop value ($)
Fruit	30,934	226,741,828
Vegetables	23,735	186,507,969
Forage	3,520	1,812,687
Nursery and nuts	1,141	24,488,377
Other crops	9,504	111,186,549
Total	68,834	550,737,410

Source: Agricultural Commissioner's Office, 2003.

Summary

On the basis of the income and employment data presented, the base or primary sectors in the study area appear to be recreation/tourism, which is related to the service and trade sectors and agriculture. Because of the availability of irrigation water supplies and the opportunity for multiple crops in the agricultural season, agriculture and related agricultural services is a contributor to the area's economy. The economic trend indicates further growth in recreation/tourism sectors and greater potential growth in the transportation sector because of the location of major highways and railroad lines through the study area. Current data indicates the important contribution of agriculture to the regional economy, but the trends also indicate that this contribution will decline in the future.

Environmental Consequences

Alternative A

Under the No Action Alternative, effects on the local or regional economy would be the same as under current conditions.

Alternative B

In general, there would be little to no effect on the local or regional economy under Alternative B. Economic activity could be associated with avoiding or minimizing developments and land uses that could affect (1) desert washes and potential corridors; (2) Peninsular bighorn sheep habitat and disturbance buffers; and (3) cottonwood-willow oases. Economic activity also could be associated with the (1) establishment of carrying capacities to determine the appropriate location, type, and number of public use facilities and to minimize natural resource degradation and (2) elimination of OHV use except for emergency situations. However, these activities would not have a significant effect on the regional economy.

Alternative C

In general, there would be little to no effect on the local or regional economy under Alternative C. Economic activity could be associated with efforts to maximize recreation, community, and commercial development to meet public expectations and demand, including development on open space lands and near Lake Cahuilla; development of trails; and recreation development on lands within the study area. Economic activity also could be associated with avoiding or minimizing developments and land uses that could affect (1) desert washes and potential corridors; (2) Peninsular bighorn sheep habitat and disturbance buffers; and (3) cottonwood-willow oases. However, these activities would not have a significant effect on the regional economy.

Alternative D

In general, there would be little to no effect on the local or regional economy under Alternative D. Economic activity could be associated with allowing limited development, expanding a limited number of recreation opportunities, and allowing limited development of trails. Other activity could be associated with avoiding or minimizing developments and land uses that could affect (1) desert washes and potential corridors, (2) Peninsular bighorn sheep habitat and disturbance buffers, and (3) cottonwood-willow oases. Also, economic activity could be associated with the establishment of carrying capacities to determine the appropriate location, type, and number of public use facilities and to minimize natural resource degradation. However, these activities would not have a significant effect on the regional economy.

Mitigation

No mitigation has been identified.

Residual Impacts

No residual impacts have been identified.

Transportation

Affected Environment

The regional transportation network within the Coachella Valley has long been influenced by the area's unique geography. The Coachella Valley, which extends northwest-southeast, is surrounded by mountains, which constrains transportation development; as a result, the Coachella Valley has a relatively limited number of transportation routes.

The first transportation routes through the Coachella Valley were established by local Indian tribes. Among the earliest established routes was the Cocomaricopa Trail, later renamed the Bradshaw Trail. This trail became one of the most important desert trails in southern California during the 1860s and 1870s. Then, as now, the route the trail followed was largely influenced by the Coachella Valley topography, mostly following the toe of slopes rising from the Coachella Valley floor to the surrounding mountains. In this manner, the trail took advantage of terrain features that served to shelter travelers from strong winds and blowing sand and dust. The placement of the Bradshaw Trail eventually led to the development of permanent settlements, strategically located where buildings and residents could be shielded from the harsh desert environment. Today, the Bradshaw Trail has been replaced by California State Highway 111, which connects most of the historic and present-day communities within the study area.

Communities, goods, and services within the study area are interconnected by several State and interstate highways. The most prominent and heavily traveled of these are Interstate 10, State Highway 86, and State Highway 111. Cities and municipalities also maintain circulation systems consisting of a web of arterial roadways built on a north-south/east-west grid pattern. Interestingly, in many locations, the region's north-south/east-west pattern of land use development and resulting road grid conflict with the region's northwest-southeast dominating topography, creating challenges for transportation planners and developers.

Many of the parcels comprising Reclamation owned and/or controlled lands within the study area are accessed from adjacent roadways, mainly consisting of local arterial and collector roads used to access residential and light industrial areas. However, a limited number of Reclamation lands are crossed by major arterials, highways, and/or railroad corridors that provide for the continuous transport of persons and goods. These transportation facilities, for the most part, have easements that allow them to cross Reclamation land. Descriptions of the primary transportation corridors that pass through the study area follow.

Interstate 10: Interstate 10 is the primary highway connecting the Coachella Valley with Los Angles, Riverside, and the San Bernardino metropolitan areas to the west and the Phoenix metropolitan area to the east. Interstate 10 is a critical component of the regional road network and provides intra-regional and inter-city access within the Coachella Valley. The interstate highway consists of a divided freeway accessed from diamond-shaped interchanges spaced a minimum of 1 mile apart.

Interstate 10 bisects the Coachella Valley and lies along the geographic center and northwest-southeast axis of the Coachella Valley. The highway passes through the Coachella Valley's central drainage area and lies parallel to the prevailing winds originating from San Gorgonio Pass. With the exception of the Thousand Palms community, lands adjacent to Interstate 10 remain largely undeveloped because of high winds and blowing sand and the potential for flooding.

Within the study area, Interstate 10 crosses the Coachella Canal in two locations: (1) about 4 miles due east of Indio or 2.5 miles northeast of Coachella and (2) about 2.75 miles northwest of Indio.

California State Highway 111: California State Highway 111 serves primarily to connect the Coachella Valley communities with communities of the Imperial Valley which lie to the southeast. The western terminus of the highway is at Interstate 10 in San Gorgonio Pass. The highway extends southeast through the study area and on to the Imperial Valley. In addition to linking communities in the Coachella Valley, Highway 111 is an important commercial route.

Recent improvements have been made to California State Highway 111. The Riverside County Transportation Commission has partnered with local cities, the County of Riverside, and the Coachella Valley Association of Governments to leverage funding and to complete planned improvements to the highway corridor between Ramon Road in Palm Springs to Indio Boulevard in Indio. Improvements made to the highway corridor include street widening, intersection improvements, and coordination of signals. Improvements made to Highway 111 have also resulted in additional work on intersecting streets. Future projects are currently being planned for intersection improvements and street widening in the cities of Palm Desert, La Quinta, Indio, and Cathedral City. California State Highway 111 crosses the Coachella Canal in one location, just east of Indio.

California State Highway 86: California State Highway 86 mostly parallels California State Highway 111 for portions of its route through the Coachella Valley. Additionally, the route parallels Interstate 10 in several areas. Serving to connect communities within the Coachella Valley, State Highway 86 also provides connection to El Centro to the south. State Highway 86 is often referred to as the "NAFTA (North American Free Trade Agreement) Highway" because it also serves to connect the eastern portion of the Coachella Valley to Interstate 10 and the Mexican border. The highway facilitates the passage of goods and

services as well as provides for tourism traffic to points south. Just northwest of Indio, California State Highway 86 joins Interstate 10 westward.

For years, the highway had a deadly reputation due to its numerous accidents. However, recent widening of the roadway from two lanes to a four-lane expressway has helped with safety. Funding for the improvement of the route was obtained from the State of California, Federal Government, and the voter-approved Measure A sales tax program. The improved expressway runs between Dillon Road and Avenue 82 south of Indio and Coachella in unincorporated county areas. Construction of the improved expressway was broken into three separate project segments and began in the northern end of the highway in 1993. Construction was subsequently completed in the southern part of the project in the community of Mecca in 2003. California State Highway 86 crosses the Coachella Canal in one location: less than one-half mile from where Highway 86 joins Interstate 10 west of Indio.

Rail Service: Freight and passenger rail service share tracks owned by the Union Pacific Railroad that were built in the second half of the 19th century. The railroad was originally part of the transcontinental railroad, which connected the Pacific Coast with Yuma, Arizona. The rail tracks enter the Coachella Valley from the west through San Gorgonio Pass and proceed east, parallel to Interstate 10. In the city of Indio, the railway turns southeast and continues along the east side of the Salton Sea.

The Coachella Valley is served by both passenger and freight rail service. Currently, the only passenger service is a thrice-weekly, long-distance train operated by Amtrak between Los Angles and Florida. The train is known as the "Sunset Limited" and operates through the Coachella Valley in the very early hours of the morning in both directions. The Sunset Limited primarily serves the leisure and tourism market.

Freight train use of the railway is projected to increase at a faster rate than passenger service, which may result in negative impacts such as poor on-time performance without increased track capacity. An additional impact to area residents and commuters of increased freight service will be longer delays at railroad crossings while waiting for longer and slower trains to cross.

The railroad tracks cross Reclamation controlled land within the study area in one location, near the same location as Interstate 10 and California State Highway 86, and cross the Coachella Canal approximately 2.75 miles northwest of Indio.

To comply with the State of California law, all city and county general plans must contain a circulation element that designates future road improvements and extensions, addresses non-motorized transportation alternatives, and identifies funding options. The circulation element must also identify transportation routes, terminals, and facilities. Within the planning area, the circulation system, as addressed within the County of Riverside General Plan, is intended to

accommodate a pattern of concentrated growth, providing both a regional and local linkage system between communities. The circulation system is also intended to be multi-modal, meaning that it provides numerous alternatives to the automobile, such as transit, pedestrian systems, and bicycle facilities, so that Riverside County residents and visitors can access the region by a number of transportation options. Furthermore, as stated in the Riverside County Vision and Land Use Element, the county is moving away from a growth pattern of random sprawl toward a pattern of concentrated growth and increased job creation. Linking areas of concentrated growth uses an integrated system of transportation that includes vehicular, pedestrian, transit, equestrian, bicycle, and air mobility options. Within Riverside County and the Coachella Canal planning area, the transportation system is designed to fit into the existing and evolving land use patterns, including open space and undeveloped land areas.

In addition to its General Plan, Riverside County supports several transportation plans and programs to manage current traffic demands as well as to prepare for future transportation needs. One such program is the Congestion Management Program (CMP) which is updated every 2 years in accordance with State of California Proposition 111. The CMP was established in the State of California to more directly link land use, transportation, and air quality, and to prompt reasonable growth management programs that would more effectively use new and existing transportation funds, alleviate traffic congestion and related impacts, and improve air quality. Copies of the Congestion Management Plan can be obtained from the Riverside County Transportation Commission.

A Regional Transportation Plan (RTP) has also been prepared by the Southern California Association of Governments, in coordination with Federal, State, and other regional, sub-regional, and local agencies in the Coachella Valley. The RTP is a multi-modal, long-range planning document that includes programs and policies for congestion management, transit, bicycles and pedestrians, roadways, freight, and project funding. The RTP is prepared every 3 years and reflects a 20-year projection of need. The RTP's primary use is as a regional long-range plan for federally funded transportation projects. The potential effect of the current RTP on the Coachella Canal are long-range plans for highway improvements for State Highway 86 to be conducted in the vicinity of Dillon Road to Interstate 10.

Environmental Consequences

Alternative A

Under Alternative A, easements or rights-of-way for transportation corridors would continue to be issued on a case-by-case basis without the benefit of a comprehensive land use and transportation strategy. This approach could lead to conflicting land uses and/or allow social, physical, environmental, or facility carrying capacities to be exceeded. Conducting site-specific NEPA analysis

would ensure protection for natural and cultural resources. Additionally, requests for new transportation routes within the study area would follow existing land use authorization requirements and regulations.

Alternative B

Construction of primary roads would be the same as under Alternative A, except that a land use strategy (including transportation) would be developed and new requests for primary roads would be evaluated and approved within the context of the strategy. Authorizations for new transportation routes would be limited to those that benefit natural and cultural resources. Public demand and need for access would be minimally met.

Alternative C

Primary road construction and major improvements to existing roads would be allowed within the study area to provide needed access to recreation, community, and commercial developments. Secondary roads would be constructed to provide access to recreation facilities or play areas. As a result, more land area may be adversely affected under Alternative C than Alternative A, B, or D. Public demand and need for access would be fully met.

Alternative D

Effects on transportation under Alternative D would be about the same as under Alternative B.

Mitigation

Under all alternatives, easements, rights-of-way, or other instruments to authorize transportation routes will contain specific stipulations to protect existing resources, decrease potential conflicts with adjacent landowners, and prevent land use conflicts within the study area.

Residual Impacts

No residual impacts have been identified.

Soils

Disturbances such as excavation or land leveling would alter the soil profile by destroying vegetation, root channels, and the soil horizons. Such activities expose the soils to increased wind and water erosion.

The Natural Resources Conservation Service (NRCS) has identified the Indio, Gilman, and Coachella soils as prime farmlands, if irrigated. These soils are minor in extent within the study area. (Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of Agriculture [NRCS, 2005]).

Affected Environment

Soils data are from the Soil Survey of Riverside County, California, Coachella Valley Area, 1980 (U.S. Department of Agriculture, 1980). All of the soils in the study area are classified as Entisols, which are soils that show little or no evidence of development of differing horizons or layers.

In the Coachella Valley area, there are three major sources of parent material: (1) recent outwash, which is mainly granitic material from the mountains surrounding the Coachella Valley; (2) lacustrine deposits of Lake Cahuilla; and (3) the weathered rock in the San Jacinto Mountains.

The alluvium from the surrounding mountains is coarse textured near the mountains and becomes progressively finer until it is very fine sand, loamy very fine sand, fine sandy loam, and very fine sandy loam. This material is rich in primary minerals.

The lacustrine deposits are composed of fine textured sediment, which is a mixture of material from the upper watershed of the Colorado River.

The weathered rock in the San Jacinto Mountains on which soils developed is granite, granodiorite, gneiss, and mica schist, all rich in minerals.

The general soils map (**map 5.5, Coachella Canal Area Soil Associations**) presents the soil associations, which are landscapes that have a distinctive pattern of soils in defined proportions. The soil associations typically consist of one or more major soils and at least one minor soil and are named for the major soils. The soils in an association can occur in other associations but in different patterns. Soils information for portions of the study area not covered by the Soil Survey was extrapolated by Reclamation soil scientists using aerial photographs and USGS quadrangle maps.

The following descriptions are provided for only those soil associations pertinent to Reclamation lands.

Carsitas-Myoma-Carrizo Association: This association is nearly level to moderately steep, somewhat excessively drained or excessively drained sands, fine sands, gravelly sands, cobbly sands, and stony sands on alluvial fans and valley fill.

The soils in this association formed in coarse-textured alluvium. They are very deep. Elevations range from 220 feet below sea level to 1800 feet above sea level. Slopes are generally less than 5 percent but range to 30 percent in minor isolated areas. The soils are calcareous and mildly to moderately alkaline throughout. The content of organic matter is very low and decreases irregularly with increasing depth. Nitrogen and phosphorus are deficient for maximum plant growth. Small areas along the San Andreas Fault zone have a water table at a depth of 1 to 5 feet.

This association is comprised of about 65 percent Carsitas soils, 15 percent Myoma soils, 10 percent Carrizo soils, and 10 percent minor soils and land types.

Carsitas soils are excessively drained. They have a surface layer of gravelly sand, cobbly sand, fine sand, or sand about 10 inches thick. The underlying layer is gravelly, coarse sand or cobbly sand, and the substratum to a depth of 60 inches or more is gravelly, coarse sand that has varying amounts of coarse fragments. The soil is mildly to moderately alkaline.

Myoma soils are somewhat excessively drained. They have a surface layer of fine sand 18 inches thick. The next layer is very fine sand 6 inches thick, and the substratum to a depth of 60 inches or more is fine sand and very fine sand. The soil is neutral to moderately alkaline and non-calcareous to calcareous throughout.

Carrizo soils are excessively drained. They have a stony sand surface layer 10 inches thick. The next layer is very gravelly coarse sand 20 inches thick, and the substratum to a depth of 60 inches or more is very stony coarse sand. The soil is moderately alkaline and slightly calcareous. The coarse fragments in all layers are generally varying amounts of gravel, stones, or cobbles.

Minor soils in this association are Gilman, Indio, Carsitas variant, Lithic-Toilipsamments-Rock outcrop complex, Coachella, Imperial, Niland, and Fluvents. Rubble land, riverwash, borrow pits, and gravel pits and dumps are also included.

Practically all of the association is in native vegetation of creosote bush, bush sunflower, and cholla cactus, or under urban development. Where irrigation water is available from wells, some small areas are planted to dates, citrus, and permanent pasture.

Myoma-Indio-Gilman Association: This association is nearly level to rolling, somewhat excessively drained to moderately well-drained fine sands in dune areas and loamy fine sands, very fine sandy loamy, fine sandy loamy, and silt loamy on alluvial fans.

The soils in this association formed in moderately fine to coarse-textured alluvium. They are very deep. Elevations range from 600 feet above sea level to 50 feet below sea level. Slopes are generally less than 5 percent except in the rolling dune areas where they are as much as 15 percent. The soils are calcareous to non-calcareous and mildly to moderately alkaline throughout. The hazard of soil blowing is moderate to high, and these soils tend to drift in winds of 12 to 15 miles per hour or more. The content of organic matter is very low and decreases irregularly with increasing depth. Nitrogen and phosphorus for maximum plant growth are deficient.

This association is comprised of about 65 percent Myoma soils, 20 percent Indio soils, 10 percent Gilman soils, and 5 percent minor soils and land types.

Myoma soils were discussed previously.

Indio soils are well drained or moderately well drained. They have a surface layer of very fine sandy loam or fine sandy loam 10 inches thick. The underlying layer to a depth of 60 inches or more is very fine sandy loam stratified with silt and silt loam. The soil is moderately alkaline and moderately to strongly calcareous. In about half the acreage of Indio soils in this association, the seasonal water table is at a depth of 3 to 5 feet.

Gilman soils are well drained. They have a surface layer of fine sandy loam, loamy fine sand, or silt loam 8 inches thick. The underlying layer to a depth of 60 inches or more is stratified loamy very fine sand and loamy fine sand with thin lenses of silt loam and silty clay loam. The soil is moderately alkaline and slightly-to-strongly calcareous. In about two-thirds of the acreage of Gilman soils in this association, the seasonal water table is 3 to 5 feet deep.

Minor soils in the association are Coachella and Carsitas soils, Fluvents, and borrow pits. Most of this association north of Highway 111 is in native vegetation of creosote bush, mesquite, and bush sunflower, and under urban development. The area south of the highway is in field and vegetable crops, grapes, citrus, and dates with increasing urbanization.

Gilman-Coachella-Indio Association: This association is nearly level to rolling, somewhat excessively drained to moderately well-drained fine sands, fine sandy loans, silt loans, loamy fine sands, and very fine sandy loans on alluvial fans.

The soils in this association fanned in medium- to coarse-textured alluvium. They are very deep. Elevations range from 300 feet above sea level to 230 feet below sea level. Slopes are less than 5 percent except for some small rolling dune areas.

Some areas are hummocky. The soils are calcareous to non-calcareous and mildly to moderately alkaline throughout. The hazard of soil blowing is moderate to severe, and the sandy soils tend to drift in winds of 12 to 15 miles per hour or more. The content of organic matter is very low and decreases irregularly with increasing depth. Nitrogen and phosphorus are deficient for maximum plant growth. In about 40 percent of this association, the seasonal water table is 3 to 5 feet deep.

This association is comprised of about 35 percent Gilman soils, 20 percent Coachella soils, 20 percent Indio soils, 20 percent Myoma soils, and 5 percent minor soils and land type.

Gilman soils were discussed previously.

Coachella soils are well drained. They have a surface layer of fine sand or very fine sandy loam 11 inches thick. The underlying layer to a depth of 60 inches or more is fine sand and very fine sand stratified with silt or very fine sandy loam lenses about one-half to one-fourth inch thick. The soil is moderately alkaline and slightly calcareous and has a few scattered freshwater shells throughout.

Indio and Myoma soils were discussed previously.

Minor in this association are Carsitas soils, Fluvaquents, Fluvents, and borrow pits.

Most of the association is in field crops, vegetables, grapes, citrus, and dates. Urban areas of Indio, Coachella, and Thermal occur on this association. Undeveloped land on the Indian Reservation has a cover of native vegetation—saltbush, arrowweed, saltgrass, alkali goldenbush, and mesquite.

Chuckawalla-Badland Association: This association consists of gently sloping to very steep, well-drained to excessively drained sands, cobbly fine sandy loans, and very gravelly sandy clay loans in the Indio Hills and on terraces.

This soil association is at the northwest and east edges of the Coachella Valley area on the Indio Hills uplift. The soils formed in the old mixed alluvium deposited by streams through Berdoo and Fargo Canyons and by Mission Creek and the Whitewater River. They are very deep, cobbly fine sandy loans and very gravelly, sandy clay loans and also very shallow sands in severely eroded areas and in areas of semiconsolidated alluvium. Slopes range from 2 to 75 percent; elevations are 50 to 1800 feet. The soils are calcareous and moderately alkaline. The content of organic matter is very low and decreases irregularly with increasing depth. The supply of nitrogen and phosphorus is deficient for maximum plant growth.

This soil association is of minor importance to the study. It is about 55 percent Chuckawalla soils, 30 percent Badland, and 15 percent minor soils.

Chuckawalla soils are well drained. They have a very thin surface layer of very fine sand covered with a close fitting desert pavement of gravel and cobbles. The next layer is very gravelly, sandy clay loam or cobbly, fine sandy loam 12 inches thick. The substratum to a depth of 60 inches or more is stratified very cobbly and very gravelly, loamy sand and coarse sand. The soils are moderately alkaline and slightly-to-strongly calcareous. In about one-third of the acreage of Chuckawalla soils, at the northwest edge of the Coachella Valley area, there is no desert pavement; and the soil is non-calcareous.

Badland is excessively drained and severely eroded. In some small areas, only a 1- to 8-inch cover of loose sand overlies the semiconsolidated alluvium.

Minor soils in the association are Carsitas soils and Lithic Torripsamments.

Most of the association has only a sparse cover of desert shrubs. The Badland part is nearly barren.

Rock Outcrop-Lithic Torripsamments Association: This association is strongly sloping to very steep, excessively drained to well-drained sands, gravelly sands, and loamy sands and rock outcrop in the transition zone between the Southern California Mountains and the Great Basin Ranges.

This association is on the east, north, and west sides of the Coachella Valley where steep mountainous areas rise from the valley floor. Slopes are 9 to 75 percent; elevations are 50 to 3200 feet. A large part of the association is rock outcrop. The soils are very shallow. They are slightly acid to mildly alkaline and non-calcareous. The content of organic matter is very low and decreases with increasing depth. The supply of nitrogen is deficient for maximum plant growth.

This soil association is made up of about 80 percent rock outcrop, 10 percent Lithic Torrinsamments, and 10 percent rock outcrop-soil complexes, other land types, and minor soils. The rock outcrop of this association is 75 to 100 percent granite, granodiorite, gneiss, and mica schist. Between the outcrops is 1 to 6 inches of excessively drained sand, gravelly sand, or loamy sand. These areas have a desert varnish at the lower elevations, especially at the east side of the Coachella Valley.

Lithic Torripsamments are well-drained soils that have a very thin layer of sand or loamy sand over consolidated alluvium or sandstone. They are mildly to moderately alkaline and non-calcareous to calcareous. About 35 to 65 percent of the surface area is flat, exposed sandstone rock, and 3 to 15 percent is stones.

Minor in the association are the Torriorthents-Rock outcrop complex, Carrizo soils, Cajon soils, and Rubble land.

Most of the association is in sparse, stunted native vegetation of creosote bush, bursage, ocotillo, barrel cactus, and in a few places annual grasses.

Badland-Carsitas Association: This association is nearly level to very steep, excessively drained fine sands, sands, gravelly sands, and cobbly sands in the Indio Hills.

The soils of this association formed in sandy or gravelly alluvium in the drainage ways of the Badland areas north of Thousand Palms. They are extremely shallow except in the very deep alluvium along the drainage ways. Slopes are mainly more than 9 percent. Elevations are 50 to 1800 feet. The soils are slightly to moderately calcareous and are neutral to moderately alkaline throughout. The content of organic matter is very low and decreases irregularly with increasing depth. Supplies of nitrogen and phosphorus are deficient for maximum plant growth.

This soil association is of minor importance to this study. It is about 80 percent Badland, 15 percent Carsitas soils, and 5 percent minor soils.

Badland and Carsitas soils were discussed previously.

Minor soils in the association are the Carsitas variant and Carrizo soils.

Practically all of the association is in native vegetation of creosote bush, encelia, and barrel cactus. Badland is nearly barren with only a few stunted plants. Table 5.13 displays the primary physical and chemical characteristics of the dominant soil series and mapping units that occur in the Coachella Valley.

Environmental Consequences

The analysis of the effects of the alternatives on soils focuses on the potential for wind erosion.

Alternative A

Wind erosion hazard would be the same as under current conditions.

Alternative B

Under Alternative B, phasing out land uses that are not compatible with the conservation and protection of natural resources would result in less wind erosion than under the No Action Alternative. Eliminating OHV use, except for emergency situations, installing fencing and barriers to prevent future OHV use, and rehabilitating OHV roads and reclamation of unused borrow pits and stabilization of active borrow pits also would result in less wind erosion.

Table 5.13 – Physical and chemical characteristics of soils in the Coachella Valley

Soil series	Type	Depth (inches)	Permeability (inches per hour)	Available water capacity (inches per inch)	Soil reaction (pH)	Salinity (micro-mhos per centi-meter)	Erosion hazard (wind)	Erosion hazard (water)	Hydro-logic group
Carrizo	StS	0-10	>20	0.03-0.05	7.9-8.4	<2	Slight	Slight	A
		10-28	>20	0.02-0.03	7.9-8.4	<2			
		28-60	>20	0.02-0.03	7.9-8.4	<2			
Carsitas	GrS	0-60	6.0-20.0	0.03-0.06	7.9-8.4	<4	Slight	Moderate	A
Coachella	CoS or FS	0-60	2.0-6.0	0.03-0.08	7.9-8.4	<4	High	Slight	B
Myoma	FSL and FS	0-60	6.0-20.0	0.06-0.09	7.9-9.0	<2	Moderate High	Slight Slight	A
Lithic Torripsamments		0-4	6.0-20.0	0.04-0.06	6.1-7.3				D

StS - stony sand; GrS - gravelly sand; CoS - cobbly sand; FS - fine sand; FSL - fine sandy loam.

Group A - Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These soils have a high rate of water transmission.

Group B - Soils having a moderate infiltration rate when thoroughly wet. These soils have a moderate rate of water transmission.

Group C - Soils having a slow infiltration rate when thoroughly wet. These soils have a slow rate of water transmission. (This group is not applicable to the study area.)

Group D - Soils having a very slow infiltration (high runoff potential) when thoroughly wet. This group includes soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Alternative C

The emphasis on recreation, commercial, and community development under Alternative C would result in moderately greater wind erosion. However, wind erosion control measures implemented during construction should alleviate much of the wind erosion losses, and landscaping, irrigation, and additional vegetation would reduce the wind erosion hazard.

Alternative D

Limited development of recreation facilities and opportunities would result in slightly more wind erosion, especially during construction of facilities. However, phasing out uses that are not compatible with conservation and protection of natural resources should result in less wind erosion than under the No Action Alternative. New trail development would require wind erosion control measures during construction. Eliminating OHV use, except for emergency situations, installing fencing and barriers to prevent future OHV use, rehabilitating OHV roads, reclaiming unused borrow pits, and stabilizing active borrow pits also would result in less wind erosion.

Mitigation

No mitigation has been identified.

Residual Impacts

No residual impacts have been identified.

Air Quality

Air quality is a major concern in southern California and the Coachella Valley. Riverside County generates the lowest emissions of any county in the South Coast Air Basin and Salton Sea Air Basin (SSAB), but air quality in the county is among the SSAB's worst.

Affected Environment

The Environmental Protection Agency developed National Ambient Air Quality Standards pursuant to the Clean Air Act as amended (1990). These standards are used to classify areas as being in attainment, non-attainment, or unclassified for any of the air quality standards. Areas that are classified as being in non-attainment are required to prepare and implement a State Implementation Plan (SIP) that identifies and quantifies sources of emissions and provides a strategy to reduce those emissions. (See "Coachella Valley Regulatory Status.")

EPA has designated the air basins in Riverside County (including the Coachella Canal Area) as non-attainment areas, largely because of the geographical features and high levels of pollutants produced in the region. Designation as a non-attainment area infers that because of the high levels of pollutants, the area is not expected to meet National Ambient Air Quality Standards in the near future.

In 1977, the California Legislature created the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for developing and enforcing air pollution control rules and regulations for the South Coast Air Basin, Mojave Desert Air Basin, and SSAB. The study area is within the Salton Sea Air Basin. Additionally, the Southern California Association of Governments was tasked with working with SCAQMD. The two agencies first adopted an Air Quality Management Plan in 1979 and have revised the plan several times subsequently, as earlier attainment forecasts were shown to be overly optimistic.

The California Legislature enacted the California Clean Air Act (CCAA) in 1998. CCAA requires regional emissions to be reduced by 5 percent per year, averaged over a 3-year period, until attainment can be demonstrated. Each region that did not meet a national or State air quality standard was required to prepare a plan

that demonstrated how the 5-percent reductions were to be achieved. In response, SCAQMD revised its air quality plans to meet CCAA requirements.

Suspended particulate matter is the most serious air quality issue faced by the region, which occasionally exceeds both State and Federal standards for PM_{10}. PM_{10} refers to small suspended particulate matter, 10 microns or less in diameter, which can enter the lungs. These small particles can be directly emitted into the atmosphere as a byproduct of fuel combustion; through abrasion, such as wear on tires or brake linings; or through wind erosion of soils. PM_{10} emissions can also be formed in the atmosphere through chemical reactions. PM_{10} is reduced by direct control of fugitive dust and/or indirect control of other pollutants that contribute to the formation of particles.

Emissions sources (mobile, industrial, etc.) and atmospheric conditions such as wind speed, wind direction, temperature, and rainfall all directly affect air quality within the SSAB. Moreover, onshore winds transport vast amounts of pollutants from Los Angeles and Orange Counties.

Additionally, within the Coachella Valley, sand naturally migrates, which directly and indirectly affects air quality. Winter rains erode adjacent mountains, while water runoff into the northern part of the Coachella Valley produces deposits of newly created sand. During the spring months, strong winds lift the sand and transport it down the Coachella Valley. Known as "blow sand," this natural sand migration process produces PM_{10} in two ways: (1) by direct particle erosion and fragmentation (natural PM_{10}) and (2) by secondary effects such as sand deposits on road surfaces which can be ground into PM_{10} by moving vehicles and re-suspended in the air by the same vehicles (human-made PM_{10}).

SSAB is separated from other designated air basins within the region by the San Jacinto Mountains and the Little San Bernardino Mountains. During the summer, SSAB is generally influenced by a Pacific subtropical high cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. Meteorological conditions can often create strong winds throughout the Coachella Valley, especially during the spring and summer months. Seasonally, as the desert begins to heat up, surface pressures become systematically lower. This creates a "vacuum-like" effect in which cooler, ocean-modified air is pulled toward the deserts. As the air is channeled through Banning Pass, which separates the Coachella Valley from the South Coast Air Basin, it accelerates, creating winds that frequently exceed 40 miles per hour (mph). At times, winds exceed 60 mph, and widespread natural dust storms develop. Visibility in the desert, which typically exceeds 35 miles, can be reduced to less than 1 mile by the resulting blow sand. Summer thunderstorms can also generate strong gusts and produce large-scale dust storms. When either or both of these meteorological conditions occur, the natural large-scale effects over the desert occur in a much greater proportion than the local human-made dust-producing conditions. Such

events, which occur approximately 10 to 15 days per year are considered "natural events" by EPA and are excluded from violation status determinations.

EPA has also identified other pollutants of concern with respect to the health and welfare of the general public. Current standards have been established for six air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide ($S0_2$), PM_{10}, and lead (Pb). Referred to as "criteria" pollutants, these substances have numerical health-based criteria for each that define acceptable levels of exposure.

SCAQMD currently monitors ambient air quality for the "criteria" pollutants at two air monitoring stations in the Coachella Valley—at Indio and Palm Springs. The Indio station has been operational since 1985, and the Palm Springs station has been operational since 1987. At both stations, particulates are sampled every 3 days.

On the basis of monitoring reported in the Coachella Valley SIP (CVSIP), approximately 53 tons of PM_{10} were released into the atmosphere in Coachella Valley on an average day in 1995. Of this, 1 percent was caused by fuel combustion, waste burning, and industrial processes. Human-made and natural dust-causing activities, including agricultural tilling in fields, construction, and demolition operations, or driving on paved or unpaved roads, accounted for 96 percent of the PM_{10}.

The 1990 amendments to the Federal Clean Air Act set into motion new statutory requirements for attaining National Ambient Air Quality Standards for PM_{10}. All areas in the United States that were previously designated as Federal non-attainment areas for PM_{10}, including the Coachella Valley, were initially designated as "moderate" PM_{10} non-attainment areas. Revisions to the SIPs for PM_{10} were to be completed by November 15, 1991, incorporating "reasonably available control measures" for PM_{10} and identifying an attainment date. In response to these regulatory requirements, SCAQMD developed the "State Implementation Plan for PM_{10} in the Coachella Valley" (1990 CVSIP). The 1990 CVSIP identified control measures and demonstrated attainment of the National Ambient Air Quality Standards for PM_{10} by 1995, 1 year after the statutory limit for moderate non-attainment areas. Section 188(b) of the Clean Air Act specified that any area not attaining the standards by December 1994 be re-designated as a "serious" non-attainment area.

Completing its re-designation process in January 1993, EPA included the Coachella Valley with four other areas nationwide re-designated as "serious" non-attainment areas. The Clean Air Act also specified that a new SIP be due within 18 months of the re-designation to "serious" non-attainment. In response to this requirement, the SCAQMD prepared a SIP revision (1994 CVSIP) that identified "best available control measures" for implementation prior to February 1997.

In 1996, a Coachella Valley SIP was completed that determined that the Coachella Valley had not violated either the 24-hour or annual average PM_{10} standards during the 3 calendar years from 1993 through 1995. This determination was based on EPA guidance which states that a determination of compliance with the Nation Ambient Air Quality Standards must be based on three complete, consecutive calendar years of quality-assured air quality monitoring data. Section 107(d)(3)(E) of the Clean Air Act states that an area can be re-designated to attainment if, among other requirements, EPA determines that the National Ambient Air Quality Standards have been attained. Accordingly, SCAQMD requested a re-designation of the Coachella Valley to attainment for PM_{10}.

However, from 1999 through 2001, PM_{10} dust levels rose sufficiently to exceed the annual average PM_{10} standards and standards for ozone. Levels recorded at the Indio monitoring station exceeded the PM_{10} annual average, while levels recorded at the Palm Springs monitoring station were within both standards. Special monitoring began at other sites throughout the Coachella Valley; this monitoring confirmed that PM_{10} standards were exceeded throughout the Coachella Valley. Therefore, the region continues to be designated a "serious" non-attainment area for PM_{10}. Should the region continue to fall short of Federal PM_{10} standards, EPA could impose more stringent regulations or sanctions on local jurisdictions (BLM, 2002).

In response to the air quality concerns within the Coachella Valley, SCAQMD developed *Guidelines for Dust Control Plan Review in the Coachella Valley* (2001). The guidelines are intended to provide guidance for activities that are required to prepare a fugitive dust control plan. The 2003 Coachella Valley PM_{10} SIP (2003 CVSIP) identifies sources of PM_{10} and control measures to reduce emissions.

Environmental Consequences

Alternative A

Existing air quality and potential effects on air quality would continue under Alternative A.

Alternative B

The maximum benefits to air quality within the study area would occur under Alternative B, primarily because less land disturbance from development activities would be allowed. Currently, dust blowing from lands where the natural vegetation has been removed is a common cause of airborne particulate pollution in the study area. Also, limited public use and access (compared to the other alternatives) throughout the study area would result in less air quality degradation from vehicle emissions and dust caused by vehicles on dirt roads. In addition,

less commercial development would mean fewer diesel truck emissions and industrial airborne pollutants. Implementation of Alternative B also could mean the reestablishment of vegetation on bare lands, further leading to fewer airborne particulates.

Alternative C

The greatest adverse effects on air quality would occur under Alternative C. Emphasizing recreation, community, and commercial development within the study area would result in more unsurfaced roads and parking areas, cleared land (and, thus, more vehicle-caused dust and blowing dust), and vehicle and industrial airborne emissions than under either Alternative B or D.

Alternative D

Effects on air quality would be the same under Alternative D as under Alternative A, except there would be greater potential for adverse effects on air quality from the development of unsurfaced roads, parking areas, and other developments associated with increased recreation.

Mitigation

Potential adverse air quality impacts would be associated with construction of recreation facilities and trails and the use of borrow pits. However, because the RMP is at the programmatic level, specific details of these activities are not appropriate; thus, associated emissions cannot be analyzed. Prior to implementation of any of these activities, site-specific environmental compliance will be completed. Pollutant emissions will be calculated using an appropriate model. Compliance with Federal, State, regional, and local air quality regulations will be required. Measures to reduce or minimize construction air quality effects would be required and included in all construction plans and specifications. Mitigation measures to reduce the amount of dust would likely include using surfactants and other chemical stabilizers, wheel washers for construction equipment, watering down of all construction areas, limiting truck traffic to non-peak hours, etc. Use of these and similar measures would likely reduce particulate matter impacts to less than significant levels.

Residual Impacts

No residual impacts have been identified.

Visual Quality

Affected Environment

Riverside County and the Coachella Valley are known nationally for their exceptional scenery, highly valued by the recreation and tourism industry.

Local zoning ordinances and other government actions have been implemented to protect this visual quality by limiting continued development of the natural lands. Moratoriums on hillside development have been issued in some locations to protect remaining tracts of natural land from development.

Land within the study area consists of three distinct types, with elevations ranging from over 500 feet above sea level to approximately 220 feet below sea level. These areas are (1) mountainous terrain composed mainly of steep, rocky, barren slopes; (2) relatively flat or rolling desert land dissected by manmade facilities, such as the Coachella Canal, roads, power lines, and undeveloped desert land, and (3) large areas of land developed for agricultural purposes. Cities, towns, and other communities are also located throughout the study area.

Perception of visual quality in a landscape is based on several common principles. First, landscape character is determined by four basic visual elements: form, line, color, and texture. These visual elements are present in every landscape and exert varying degrees of influence. The stronger the influence exerted by these elements, the more interesting the landscape to the human eye. Additionally, landscapes that contain visual variety are generally more aesthetically pleasing. Variety in the landscape that harmonizes with the surroundings is considered attractive, while landscape alterations that create disharmony are generally considered unattractive (BLM, 2003b).

Generally, the natural landscape of the study area is in shades of tan and brown, as normally associated with a desert environment. The vegetation, consisting of various species of brush with interspersed grasses, offers softly contrasting greens and bluish greens, especially during the spring and early summer months.

Increasingly, the intrusion into the visual landscape of housing and commercial developments, roads, and power lines provides disharmony with the natural environment. Many developments use muted earth-tone colors to help soften the visual intrusion; however, manmade structures still tend to overpower the natural landscape in portions of the study area. The agricultural areas of the Coachella Valley have distinct colors and manmade lines which provide contrast to the natural setting.

Environmental Consequences

Alternative A

Implementation of Alternative A would result in few dramatic changes to the visual resources. Continued issuance of land use authorizations and periodic development of recreation facilities could result in a gradual degradation of the visual quality of the area but not to a degree greater than under Alternative C or E.

Alternative B

The visual quality of the study area would be best protected under Alternative B because fewer non-natural intrusions on the visual character of the study area would be allowed. Also, this alternative would provide for the rehabilitation of already visually scarred areas, such as OHV trails.

Alternative C

The greatest adverse effect on the visual quality of the study area would occur under Alternative C. Emphasizing community, recreation, and commercial development would result in the greatest number of intrusions on the natural landscape, such as buildings, roads, and parking areas. Degradation of the visual quality could be minimized through careful and thoughtful design of constructed facilities. However, the potential exists to heavily degrade the visual character of the area because of the study area's relatively stark landscape and sparse vegetation.

Alternative D

The visual quality of the study area would be less affected under Alternative D than under either Alternative A or C because fewer facilities would be developed, resulting in fewer intrusions on the natural landscape. However, because some limited development would be allowed, adverse effects would be greater than under Alternative B. Rehabilitation of disturbed areas exhibiting evidence of human intrusion would enhance the visual quality.

Mitigation

No mitigation has been identified.

Residual Impacts

No residual impacts have been identified.

Cultural Resources

Coachella Canal operation and maintenance often require management actions that involve surface disturbance. Federal historic preservation legislation requires consideration of any impacts to cultural resources before implementing any Federal project or action, including any activities on Federal lands, such as construction, land use, or recreational development. Three survey levels are used to obtain the required information for compliance. Class I literature searches provide an historical overview of the area and the framework for evaluating its significance; these searches are adequate if no ground disturbances or operational changes are proposed. Class II and III surveys are, respectively, predictive sampling and intensive on-the-ground surveys and must be completed prior to any land disturbance. Inventories may result in the identification and evaluation of previously undiscovered cultural resources, which Reclamation would then manage accordingly.

Any land use activity that would disturb the ground surface or subsurface has the potential to adversely affect cultural resources present in the area. Management actions involving surface disturbance also could potentially impair management of cultural resources. Unmitigated disturbance of cultural resources could occur if onsite inventories were not completed before surface-disturbing activities began, or if completed inventories failed to identify all resources, such as buried sites.

Affected Environment

Geological History

An understanding of ancient Lake Cahuilla's evolution is helpful in understanding the development of Coachella Valley human prehistory. Centuries of sediment deposits from the Colorado River created a barrier that separated the Imperial and Coachella Valleys from the Gulf of California. Because of silt buildup of the riverbed, the natural course of the river fluctuated to either side of this barrier, alternately creating Lake Cahuilla. During each filling, water was impounded north of the barrier created by the Colorado River Delta. The freshwater lake continued to fill until the water level reached the minimum crest height of the delta at Cerro Prieto and then would overflow the delta and flow south to the Gulf of California.

The lake's level was constant enough to support a fishery similar to that of the muddy conditions of the Colorado River. The dominant species included striped mullet (*Mugil cephalis*), a small pupfish (*Cyprinodon macularius*), Colorado River squawfish (*Pteichocheilus lucius*), razorback (humpback) sucker (*Xyrauchen texanus*), and Colorado River bonytail (*Gila elegans*). A freshwater marsh plant community was present at the shallow waters at the northeast end of Lake Cahuilla. Archeological evidence indicates the importance of bulrushes (*Scirpus spp.*), cattails (*Typha*), and mussels (*Anodonta dejecta*), which were

abundant in the shallow waters. Waterfowl also were abundant; many species of geese, ducks, and shore birds took advantage of the rich marsh life of the lake. Eventually, the Colorado River would redivert its flow back to the Gulf of California, causing ancient Lake Cahuilla to evaporate slowly. It would take approximately 60 years to become totally desiccated.

Within the last 2,000 years, there have been at least three or four lacustral intervals (i.e., periods of stable lake levels), during which the lake reached the minimum crest of the delta. Archeological evidence, combined with geological data, appear to indicate four Lake Cahuilla occupations between around 700 and 1600 A.D. No lacustral intervals have been identified for the period between 1 and 700 A.D. An unknown number of lacustral stands occurred before l A.D.; however, the archeological data does not extend to that period.

Cultural History

The known prehistory of the Coachella Valley does not seem to go beyond the last stand of ancient Lake Cahuilla, at about 1300 A.D., probably because very little archeological evidence of earlier occupations has been found or identified.

Preprojectile Period (Pre 10,000 B.C.) A preprojectile period dating prior to 10,000 B.C. has been postulated. Little or no hard archeological data, however, has been found to either prove or disprove humans dwelled in this area during this period. The type of sites attributed to this period would be sparse, shallow surface sites; and, therefore, these rare finds would be difficult to date.

San Dieguito (c. 10,000-5,000 B.C.) The San Dieguito people are the oldest documented inhabitants of the Colorado Desert region. This culture was a generalized hunting economy with habitation sites located predominantly along beaches and lake shores and other such relict hydrological features. Other sites have been cleared circles in the desert pavement and large geoglyphs.

Desert Archaic (5,000 B.C.-900 A.D.) In other chronologies, this period has been broken into two separate cultural periods: the Pinto Period (5,000 B.C.-1,500 B.C.) and the Amargosa Period (1,500 B.C.-900 A.D.) There was a general warming of the climate; inland lakes evaporated and eventually disappeared, leaving the surrounding areas as desert. Originally, this period of time was considered to be a hiatus in desert occupation. Although there was a general movement of the populations to the coastal areas, there was still settlement in the desert areas, but mostly sparse due to small populations and nomadism. A trend from generalized hunting to generalized foraging occurred during this period. To date, there is no evidence for the above occupations in the Coachella Valley. Evidence of these occupations would be under the lake sediment, if they exist at all. The occupations for which there is archeological evidence in the Coachella Valley stem from the late prehistoric continuing to the present.

Late Prehistoric (900-1500) This period is distinguished by the concentration of archeological sites found on or below the 40-foot above mean sea level (msl) shoreline of ancient Lake Cahuilla, with evidence of adaptation to and reliance of the lake and its resources. The marshy shallows at the northern end of the lake supported heavy growth of aquatic plants, fish, mussels, and various shore birds, all used by the area's occupants. At least two episodes of fillings and desiccation of the lake occurred during this period. As the lake slowly dried up, over a period of less than 100 years, the native population shifted to the nearby mountains and areas to the east. Many Desert Cahuilla lineages claim origin in the mountains, although oral traditions speak of life around the lake, which would appear to indicate movement to the mountains after the lake dried up.

Early Historic (1500-1920) Early historic contact in this area was due to exploration and travel for the purpose of locating new routes between the Colorado River and the California coast. Most of the early travel in the area was through the Imperial Valley to the south, primarily because of the scarcity of permanent water sources in the Coachella Valley. The first European contacts with the Cahuillas were the exploration parties of Garces and de Anza through the southern portion of the Colorado Desert from 1769-76. The earliest documented Euroamerican contact with Coachella Valley inhabitants was from 1823-26, when Jose Romero's expedition traveled into the Colorado Desert to explore the potential of utilizing the prehistoric Cocomaricopa Trail as the main travel and mail route from San Gorgonio Pass to the Colorado River. Because of the hazards of this route and lack of forage for horses, however, the idea was quickly abandoned. The Cocomaricopa Trail was an important prehistoric trade and travel route, roughly paralleling (present day) Interstate 10 from the Colorado River at Blythe west and northwestward to the Palm Springs area and then west to the coast. Jose Maria Estudillo, a member of this expedition, wrote an account describing the Cahuillas and their planting of melons, pumpkins, and corn, along with their practice of digging wells.

Modern developments in the Imperial and Coachella Valleys began after the United States annexed California in 1846 and acquired New Mexico Territory in 1848. Initially limited to military surveys and travel routes to the north and south, settlement accelerated when stage lines began to carry mail and supplies between Los Angeles and the Colorado River mining districts. The Bradshaw Route, developed in 1862 by William D. Bradshaw, was a major cross-Colorado desert trail that may have paralleled the old Cocomaricopa Trail. This route served mining camps near La Paz, Arizona, until 1877, when the Southern Pacific Railroad opened lines eastward from San Bernardino.

Wagon roads through Coachella and Imperial Valleys were developed to provide mail and supply routes from Los Angeles via San Gorgonio Pass to the Yuma region and mining camps along the Colorado River. Travel was restricted by the

lack of water and forage for stock animals along the way, and travelers depended on military outposts and later on railroad maintenance camps for water and assistance.

In 1853, the U.S. Corps of Topographical Engineers surveyed this area to establish a major southern railroad route through California. Geologist William Blake described the Coachella Valley and its inhabitants. Blake first recognized the extinct Lake Cahuilla from the evidence of the ancient shorelines and gave valuable information concerning the Cahuilla.

The Southern Pacific Railroad's main line through the Coachella Valley was completed in 1877, enabling Anglo-American settlers to move into the Coachella Valley. These settlers quickly realized that artesian water could be obtained by drilling shallow wells, which led to the development of a nascent agriculture industry. Yet by 1918, the ground water was in danger of depletion. Consequently, the Coachella Valley Water District was formed and joined with the Imperial Irrigation District to promote the development of the All-American and Coachella Canals.

Contemporary Historic (1920-present)

The assurance of a steady supply of water from the Colorado River guaranteed the expansion of area agriculture and promoted increased recreational tourism. The All-American Canal system itself is a technical and engineering achievement that has had profound and lasting effects on socioeconomic developments in southeastern California.

Although CVWD was formed in 1918, it was not until nearly 30 years later that the Coachella Canal—then seen as a branch of the All-American Canal system—was constructed and operational. One major issue was excluding the proposed canal from the various Swing-Johnson bill(s) that eventually authorized the construction of Boulder Canyon and the All-American Canal Projects.

Ultimately, however, on December 21, 1928, the final Swing-Johnson bill, known as the "Boulder Canyon Project Act," was signed by President Herbert Hoover. It authorized the construction of Boulder (Hoover) Dam, the Imperial Dam and desilting works, and the All-American Canal System—including the extension from Imperial Valley northwest to Coachella Valley.

Delayed a decade by the Great Depression and expenditures to other large public works projects like Washington's Grand Coulee Dam, construction on the Coachella branch of the All-American Canal began August 11, 1938. Material and labor shortages during World War II slowed canal construction even further; work was halted at mile 86 in 1942, then resumed 2 years later under the War Foods Program. In December 1948, workers completed the Coachella Canal's final reach, with water delivery to the Coachella Valley via the 123.5-mile-long canal following soon afterward.

With this new water, soon came new growth. Since the first delivery of Colorado River water via the Coachella Canal and its underground distribution system to the Russell-Alexander ranch near Thermal, California, on March 29, 1949, agricultural growth in the Coachella Valley has skyrocketed. Furthermore, the availability of more water sparked the exponential growth of tourism and recreational opportunities, especially in the construction of golf courses and resorts in and around Palm Springs and Palm Desert in Coachella Valley's western reaches, and, in general, population increases in major valley cities like Indio and La Quinta. More than any other factor, the canal changed the Coachella Valley's socioeconomic and cultural landscape in a remarkably short period of time.

Ethnohistoric

Sometime around the end of the 15th century, the Colorado River changed its river course to enter directly into the Gulf of California, eliminating the supply of water to ancient Lake Cahuilla. Lake Cahuilla began to evaporate until it was reduced to a dry, salt bed, a process that may have taken as few as six decades to complete. The lake's elimination resulted in the gradual loss of the heavily relied upon aquatic resources and the establishment of desert vegetation, such as mesquite, on the lakebed.

The Coachella Valley lies within the historic territory of the Shoshonean-speaking Cahuilla culture. Traditional Cahuilla territory extended south from the San Bernardino Mountains to the northern Borrego Desert, east across the Colorado Desert, and west to the vicinity of present-day Riverside. Exactly how long Cahuilla people dwelled in this region is unknown. Tribal oral traditions, however, reminisce about life around the lake, the fishing and hunting, and the eventual dissipation of ancient Lake Cahuilla. These oral traditions show the historic residents of the Coachella Valley to be the logical descendants of the prehistoric people that resided there until the evaporation of ancient Lake Cahuilla disrupted their livelihood. Oral traditions also support movement of valley inhabitants into the mountains, and then the return to the Coachella Valley after mesquite and other vegetation became established on the dry lakebed. Mesquite was a main staple of the Cahuilla, with agave, pinon nuts, and acorns gathered in the nearby mountains to the west, all supplemented by hunting and agriculture. The Cahuilla also gathered several hundred species of plants for use as foods, medicines, manufacture, and dyes.

William Blake, geologist for the 1853 Pacific Railway Survey Expedition, produced the first detailed documentation of the Cahuilla and their settlements.

Other early historical accounts took note of the extensive agriculture, the maintained wells, and the densely populated villages, which were usually located in canyons or on alluvial fans near sources of water, such as springs, or where the water table could be reached by digging wells. The villages were connected by

trails. An extensive trade network connected the Cahuilla with the Gabrielino and the Chumash on the Pacific coast and with tribes in Arizona and along the Colorado River.

From 1855-56, the U.S. Land Office surveyed, reported, and mapped 14 Cahuilla villages. The survey estimated a native population of about 3,000. By the 1850s, many of the Cahuilla were working at white communities to the west. As for other Indian tribes in the American West, in the early 1860s, smallpox and measles epidemics decimated the Cahuilla population.

The disruption of the Cahuilla lifestyle continued with the 1877 completion of the main line of the Southern Pacific Railroad to Yuma, Arizona. With the railroad's establishment, the Coachella Valley became attractive to settlement by Euroamericans, who quickly realized that agriculture was economically feasible because of the availability of water from shallow wells.

Despite this disruption, the Cahuilla remain sensitive to the resources that reflect their cultural past, and they have taken an active interest in recording and preserving these resources.

Cultural Resource Surveys

A review of site data records and cultural resource reports pertinent to the study area reveals that previous cultural resource surveys in the study area were associated with such undertakings as BLM resource management plans, transmission line(s) or highway construction, contracts for proposed developments, and assorted explorations by private individuals or educational institutions. The level of intensity, area coverage, and data presentation reported in the literature is uneven.

From the 1920s to the early 1950s, Malcolm Rogers of the San Diego Museum of Man conducted the first research-oriented archeological surveys in the southern Colorado Desert area. His major interest was in the relationship between lower Colorado River and California Peninsular mountain peoples with the numerous campsites he found along ancient Lake Cahuilla shorelines. He left a considerable collection of published and unpublished manuscripts, site records, and field notes. Much of his research centered on the ancient Lake Cahuilla area.

Archeologist A.E. Treganza of the University of California, Berkeley, conducted some surveys in the early 1940s and recorded the fish traps. These traps have only been found on the west side of ancient Lake Cahuilla and were constructed with small boulders set in V-shaped formations with the open end upslope onto the shore. These weirs would trap the fish during the period of the recession of ancient Lake Cahuilla. This site is currently the Fish Traps National Register District.

Parts of the ancient Lake Cahuilla beachline were surveyed in the early 1950s by B.E. McCown and members of the Archeological Survey Association of Southern California, an avocational group. Unfortunately, much of this work remains unpublished. Jay von Werlhof, Director of the Imperial Valley College Museum, has compiled an extensive database on the archeology of the study area through both contract projects and student field work.

Much of the recordation work in the northern Coachella Valley since the 1960s has been performed by the University of California, Riverside. P.J. Wilke, under the university's auspices, conducted several inventories and excavation work at the Wadi and Beadmaker sites and the Myoma Dunes. Wilke's inventories have been the definitive work for this area. It was Wilke's conclusion that the historic Cahuilla are probable descendants of the prehistoric occupants of the northern perimeter of ancient Lake Cahuilla.

Existing Sites Approximately 3,900 acres of Reclamation withdrawn or fee lands are involved in this RMP/EA. Of this, about 580 acres (15 percent) have received some level of inventory work since the early 1970s. None of these surveys were sponsored by Reclamation but were a result of being surveyed for compliance under the California Environmental Quality Act (CEQA). There are over 300 recorded sites in the Coachella Valley, indicating that a fairly high density of sites is to be expected. Sensitive site-specific information on cultural resources is classified and excluded from the Freedom of Information Act and will be made available only to qualified individuals with legitimate research interests. For this reason, this document does not reveal precise site locations.

The majority of reported sites (98 percent) are located in the western section of the Coachella Valley. The eastern side of the Salton Sea has not been surveyed as thoroughly as the western side. Consequently, the lack of site-type diversity on the Coachella Valley's eastern side is probably a reflection of the paucity of intensive surveys, rather than actual occurrences of sites.

Cultural resources within the Coachella Valley generally can be divided into three site categories: (1) prehistoric archeological, (2) historic/historic archeological, and (3) traditional cultural and religious areas. Site types recorded in the Coachella Valley include, but are not restricted to, temporary camps; petroglyphs; village sites; fish traps; cremations; prehistoric and historic trails; hot spring spas; mining roads and railroad spurs that serviced the mines, stage roads and through highways, and the Coachella Canal proper with possible remains of the construction period work camps and its auxiliary material facilities.

There is research potential for archeological remains that probably still lie undiscovered in the eastern part of the Coachella Valley. Subsurface deposits have been reported for some campsites that may yield data not offered by surface

remains. Aboriginal trails have been reported, and these may connect to ceramic clay sources in the hills to the north, which can aid in the finer classification of pottery collections.

Elevation is a general indicator of site density, with the greatest density lying between minus 40- and plus 42-foot msl elevation contours. This lakefront zone has been dated by radiocarbon and geological techniques to infilling episodes from the 10th to 17th centuries. All of the study area parcels, however, lie in areas that could contain additional undiscovered cultural resources.

The location of the canal across a portion of the East Mesa and along the beach terraces of ancient Lake Cahuilla places it directly within a recognized archaeologically sensitive region. The canal, itself a potential candidate for listing to the Register, was excavated through the culturally sensitive minus 40- to plus 42-foot elevation contour level, which consequently destroyed many sites. (The canal was excavated before the passage of legislation ensuring the protection of cultural properties.) Cultural resources in the immediate study area have received little systematic study. Small-scale, project-specific surveys and mitigation work performed since 1938, however, have produced data suggesting prehistoric and historic archeological potential for the study area. The area along portions of the ancient Lake Cahuilla shoreline, which was disturbed by the canal, is considered to be of high sensitivity. The canal itself is an important element in the region's contemporary (post-1920) history and should be recognized as a historical property, although not formally listed as such.

In summer 2004, Reclamation requested that the California State Historic Preservation Office's (SHPO) Eastern Information Center (EIC), located at the University of California, Riverside, research and compile survey information for all formally reported cultural resources (those with CA-RIV- trinomial designations) within a 200-yard corridor (100 yards on both sides of canal centerline) from the Torres-Martinez Indian Reservation (approximately 4 miles east of Mecca) to a few miles southeast of (new) Lake Cahuilla, including a 100-yard perimeter around the lake. Detailed cultural resource information also was sought for all Reclamation-owned parcels outside of the canal corridor.

After obtaining the most recent formal survey information from the EIC and incorporating information from the previous Coachella RMP, an Access database was created to help organize the list of resources based on elevation and location and to assist in the future generation of reports and other data. Information from this database, along with the maps that show the location of all recorded cultural resources in the study area, will eventually be GIS-layered to help Reclamation determine overall cultural resource sensitivity should any construction be proposed.

Furthermore, in compliance with CEQA, Reclamation requested that the Native American Heritage Commission, Sacramento, perform a Sacred Lands search

within the APE. Six (unspecified) locations within the Indio and Valerie USGS quad maps were identified as sacred sites. The commission listed contacts for these sites; however, they will only be consulted on a case-by-case basis should any potential for adverse effects arise.

Conclusions and Recommendations

Because the development of an RMP is considered a Federal undertaking under section 106 of the National Historic Preservation Act (NHPA), written and verbal consultations with SHPO, federally recognized American Indian tribal groups who may have an interest in the APE, and the Native American Heritage Commission (as per California Environmental Quality Act requirements) were initiated and are ongoing.

The relatively few archeological sites identified within the APE—especially along Coachella Canal's eastern and northeastern reaches—do not indicate the number of sites or potential sites within Coachella Canal's Riverside County stretch. Although many sites were undoubtedly unearthed and destroyed during the canal's construction (section 106 of NHPA did not take effect until the mid-1960s), the number of recorded sites nearby, along with the region's rich prehistory, suggest that additional sites are likely to exist within all 19 parcels identified within the APE.

Of the 101 identified sites within the APE, 19 are located within the land parcels listed for potential development; two prehistoric sites, CA-RIV-1715 and -7052 (as part of the Coral Mountain Regional Park) are eligible for the Register. Only parcels J, K, O, R, S, and T contain recorded cultural resources located within the parcels or immediately adjoining, with parcels S and T containing the majority of sites at (11). No recorded cultural resources have been identified within or immediately adjoining parcels A through I, L, M, and P. (Parcels N and U from the previous RMP/EA were returned to the Bureau of Land Management through the withdrawal review process.) Absence of recorded sites in these parcels, however, does not preclude any possibility that prehistoric and historic sites still exist.

Conversely, the lack of historic structures or buildings recorded within the APE does not indicate how many actually exist in the area, because a comprehensive survey of building and structures has not been conducted. As with archeological resources, an intensive survey of historic structures (defined by NHPA as 50 years or older), if any, would be required under section 106 before starting any ground-disturbing or potentially ground-disturbing activities.

Environmental Consequences

Historical buildings, objects, prehistoric sites, and engineering and architectural properties are the fabric of the Nation's historical heritage. They are the tangible

link with the past and give understanding of where we have been, where we are, and they provide perspective for moving into the future. As a Federal agency, Reclamation is responsible for protecting and managing these properties, collectively known as cultural resources. It is also the responsibility of Reclamation to identify, evaluate, and nominate, when appropriate, these properties to the Register. In the event that physical development would substantially alter land use, Reclamation is required to mitigate any potential effects to significant cultural sites impacted by Reclamation's actions.

A class III on-the-ground survey would be required for the location, identification, and evaluation of cultural resources. Unlike class I, which is a literature search, and class II, which is a predictive survey based on random samples, a class III survey is defined by *Reclamation Instructions* as follows:

> An intensive on-the-ground examination of all the areas to be affected by Reclamation action or on lands under Reclamation's administration. It is designed to locate and make a preliminary professional evaluation of all identified cultural resources. A class III survey may require test excavations or other specialized studies for the purpose of evaluating the significance of cultural resources.
>
> Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties and seek comments from the California SHPO and an independent organization, the Advisory Council on Historic Preservation (Council). If mitigation is required, the extent and form would be decided during consultation between Reclamation, SHPO, and the Council.

Alternative A

Under the No Action Alternative, Reclamation's management of parcels would continue unchanged under applicable Federal and State historic preservation laws. Any land use activity that would disturb the ground surface or subsurface has the potential to adversely affect cultural resources present in the area of the disturbance, especially in the cultural resource intensive parcels J, K, and O through T. The type and degree of impact would vary with the type of cultural resource involved.

Other types of land use activities can result in restrictions that can protect cultural resources—for example, areas set aside for wildlife habitat and special management areas like parks or recreation areas. These designated land use activities can serve directly or indirectly to preserve the cultural resources within the protected area.

Cultural resources located within these types of land use areas would be indirectly protected by limiting allowable uses to those compatible with the values of these

areas. This restriction would reduce those activities—including most ground-disturbing activities—that could harm cultural resources. On the other hand, enhancement of parks, proposed parks, trails, access roads, and rest stations could affect cultural resources, recorded or undiscovered.

If cultural resources would be affected, either by land transfer or construction, a plan best suited for mitigating impacts to the individual resource or resources would be formulated in consultation with the appropriate agencies and implemented. (See "Mitigation.")

Alternative B

Impacts to cultural resources under Alternative B would be the same as under Alternative A.

Alternative C

Under Alternative C, there would be greater deterioration of cultural resources resulting from a wider range of recreational projects and activities. Cultural sites would possibly undergo inadvertent and/or purposeful vandalism or theft without protection. Removal of artifacts, any rearrangements, destruction or disturbance of artifacts, or of any portion of a site, results in the loss of scientific knowledge, which is important to understand and reconstruct the past.

Before any ground-breaking or ground-disturbing activity is undertaken, all Reclamation lands would be subject to class II (sampling) or III (intensive) surveys in accordance with *Reclamation Instructions*. Although intensive identification would be undertaken, previously unknown or unrecorded resources could be encountered, especially in the cultural resource intensive west side of the Coachella Valley near Lake Cahuilla State Park (specifically parcels O through T.) If this situation were to occur, construction would cease until the resource has been evaluated for significance. If determined necessary, mitigation measures would be carried out before resuming construction or operation activities.

Transferring lands out of Federal ownership would result in loss of protection under various Federal laws and regulations for any cultural resources located on these lands. In accordance with *Reclamation Instructions*, these lands would be subject to class II (sampling) or III (intensive) surveys to identify any cultural resources prior to proposed land ownership adjustments, in addition to extensive mitigation measures.

Alternative D

Impacts to cultural resources would be the same as under Alternative A, with additional emphasis on the careful avoidance, protection, and mitigation of recorded and undiscovered cultural resources located in parcels J, K, and O

through T. Although parcels A through G in this updated RMP/EA contain no recorded cultural resources either within or adjoining the study area, this does not preclude the possibility they exist. Therefore, any partnership agreements must fully comply with applicable Federal, State, or local preservation laws.

Mitigation

Reclamation, working alone or in partnership with State and/or local government agencies or private entities, will continue to comply with section 106 of NHPA for Federal undertakings; and Reclamation will consult with the SHPO and area Indian tribes, as required by 36 CFR 800, as revised, to locate and identify any cultural resources within the study area's parcels before initiating any Federal undertaking.

Reclamation will do the following:

- In consultation with the SHPO and area Indian tribes—and on the basis of class I survey information—develop a research design for conducting class II or III surveys (1) to determine areas of high or low potential for cultural resources, including traditional cultural properties, (2) to determine sources of impacts, and (3) to define additional investigation or protective actions appropriate for each site. The plan would serve to support request for funding to implement necessary actions.

- Conduct intensive surveys of areas with high potential for cultural resources and/or any areas scheduled for ground-disturbing or potentially ground-disturbing activities to locate cultural resources. During ground-disturbing activities, Reclamation would make every effort to avoid significant cultural resources.

- During construction, if cultural resources are discovered, ensure that work in the immediate areas ceases until a qualified archeologist evaluates the site, takes appropriate measures, and consults with the SHPO.

- Ensure that any project-specific agreements regarding cultural resources are included as specifications in construction contracts and inform construction contractors about the presence of cultural resources within or near the study area and about their protection under Federal and State laws.

- When granting easements on or across Reclamation-owned lands, review the proposal for potential effects on cultural resources and ensure the entity receiving the easement complies with all applicable cultural resource laws for any activities within the boundaries of the easement.

- Specific mitigation cannot be identified until the intensive surveys are completed, to determine if Register-eligible cultural resources are present.

The following mitigation strategies presume that one or more cultural properties will be determined eligible for the Register and will be affected by the proposed action. The exact nature of mitigation would be determined in consultation with the SHPO and others, as appropriate, and documented in a memorandum of agreement with the consulting and interested parties.

- Periodically monitor Register-eligible or unevaluated sites to assess impacts and the need for investigative or protective action.
- Place protective materials over portions of sites affected by erosion or trail construction or use to prevent additional disturbance.
- Recover site data through systematic surface collection or excavation and provide resulting reports to the professional community and interested public.
- Consult further with area Indian tribes about appropriate actions to protect endangered traditional cultural property sites and implement those actions where reasonable and feasible.
- Incorporate information about cultural resources into brochures and other educational materials created for use in the study area.

Residual Impacts

No residual impacts have been identified.

Indian Trust Assets

Affected Environment

Indian trust assets are legal interests in property held in trust by the United States for Indian tribes or individuals. Examples of trust assets are lands, minerals, hunting and fishing rights, and water rights. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian tribes or Indian individuals by treaties, statutes, and Executive orders, which are sometimes further interpreted through court decisions and regulations. This trust responsibility requires Reclamation to take all actions reasonably necessary to protect trust assets.

Reclamation provided BIA and area tribes information about this study, including notice of scoping and associated public meetings and the draft alternatives and associated public meetings. In addition, Reclamation contacted BIA and area tribes about Indian trust assets within the study area (**attachment A**). In response, the Soboba Band of Luiseño Indians advised Reclamation the area

covered by this RMP/EA is outside the Soboba Reservation territory as well as outside the traditional use area for the Soboba Band of Luiseño Indians. Because of the closeness of this proposed action to their traditional use area, they requested copies of cultural resource documents and reports and will be provided copies of this draft RMP/EA. No other potential trust assets in the Coachella Canal Area have been identified.

This draft RMP/EA is being provided to BIA and area tribes for review and comment. If, during this review period, Reclamation is notified of any trust assets affected or potentially affected by actions identified in the draft RMP/EA, the information will be included and analyzed in the final RMP/EA.

During implementation of the RMP, Reclamation will be in contact with BIA and local tribes. Should trust assets be identified, potential impacts will be identified and analyzed, and action will be taken to avoid adverse impacts. If adverse impacts cannot be avoided, mitigation will be implemented.

Environmental Consequences

No effects on Indian trust assets have been identified under any of the alternatives.

Mitigation

If adverse impacts to Indian trust assets in the study area are occurring (Alternative A) or would occur from implementation of any action alternative, Reclamation would seek means to avoid these impacts. If adverse impacts cannot be avoided, Reclamation would provide appropriate mitigation or compensation.

Residual Impacts

No residual impacts have been identified.

Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," dated February 11, 1994, requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities, as well as the equity of the distribution of the benefits and risks of their decisions. Environmental justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the

environment. Fair treatment implies that no group of people should bear a disproportionate share of adverse effects from an environmental action.

To comply with the environmental justice policy established by the Secretary of the Interior, all Department of the Interior agencies are to identify and evaluate any anticipated effects, direct or indirect, from the proposed project, action, or decision on minority and low-income populations and communities, including the equity of the distribution of the benefits and risks. Accordingly, this section examines the anticipated distributional equity of alternative-associated impacts with respect to potentially affected minority and economically disadvantaged groups.

Affected Environment

This section provides baseline demographic information used to analyze environmental justice impacts.

Race and Ethnicity

Riverside County and the communities near the portion of the Coachella Canal addressed in this RMP/EA would potentially be most affected by implementation of the alternatives. Population data from the 2000 census for the State of California, the Torres-Martinez Reservation, the county, the Coachella Valley, and four communities are shown in table 5.14. The population is shown for seven racial categories: White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races. The percentages of total racial minority population and the Hispanic or Latino population, a minority ethnic group, are also shown.

All of the areas (except Riverside County and La Quinta) have a greater percentage of total racial minority populations than the State of California as a whole. All of the areas (except La Quinta) also have a greater percentage of ethnic (Hispanic or Latino) populations than the State. The ethnic population of three areas, the reservation, Coachella, and Mecca, is more than 90 percent.

Low-Income Populations

Low-income populations in the area are identified by several socioeconomic characteristics. As categorized by the 2000 census, specific characteristics used in this description of the existing environment are income (per capita and median family), the percentage of the population living below poverty level (all persons and families), substandard housing, and unemployment rates.

Table 5.14 – Population, race, and ethnicity, 2000

Area	Total population	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some other race	Two or more races	Total racial minority population[1] (percent)	Hispanic or Latino (of any race) (percent)
California	33,871,648	20,170,059	2,263,882	333,346	3,697,513	116,961	5,682,241	1,607,646	13,701,589 (40.5)	10,966,556 (32.4)
Torres-Martinez Reservation	4,146	1,466	8	195	40	8	2,275	154	2,680 (64.6)	3,821 (92.9)
Riverside County	1,545,387	1,013,478	96,421	18,168	56,954	3,902	288,868	67,596	531,909 (34.4)	559,575 (36.2)
Coachella Valley	118,932	59,444	1,782	1,176	1,552	76	50,717	4,185	59,488 (50.0)	88,154 (74.1)
Coachella	22,724	8,810	103	191	71	7	12,854	688	13,914 (61.2)	22,132 (97.4)
Indio	49,116	23,903	1,361	510	742	49	20,638	1,913	25,213 (51.3)	37,028 (75.4)
La Quinta	23,694	18,602	336	171	446	21	3,282	836	5,092 (21.5)	7,584 (32.0)
Mecca	5,402	1,302	6	55	40	0	3,817	182	4,100 (75.9)	5,295 (98.0)

[1] Includes Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, Two or More Races.
Source: U.S. Census Bureau, 2000a.

As shown in table 5.15, based on 1999 income as reported in the 2000 census, the per capita and median family incomes for all areas (except La Quinta) are less than the State per capita and family income, and all areas (except La Quinta) have an equal or greater percentage of persons and families living below the poverty level. For the reservation, Coachella, Indio, and Mecca, the percentages of persons living below the poverty level are more than double the State, with the levels for the reservation and Mecca nearly three times the State rate. The percentage of families below the poverty level for all of the areas (except La Quinta) is greater than the State level, with the levels for the reservation and Mecca more than three times the State level.

Other measures of low income, such as substandard housing and employment (shown in table 5.16), also characterize demographic data in relation to environmental justice. Substandard housing units are those overcrowded and those lacking complete plumbing facilities. The percentage of occupied housing units in the areas with 1.01 or more occupants per room for all but the county and La Quinta was greater than for the State. The percentage of housing units lacking complete plumbing facilities for the reservation, the Coachella Valley, and Coachella was greater than for the State. The 2000 unemployment rates for the local areas ranged from 3.7 to 15.0 percent, compared to the State unemployment rate of 7.0 percent.

Table 5.15 – Income and poverty, 1999

Area	Income (dollars)		Percent below poverty level	
	Per capita	Median family	All persons	Families
California	22,711	53,025	14.2	10.6
Torres-Martinez Reservation	8,226	21,021	42.1	38.6
Riverside County	18,689	48,409	14.2	10.7
Coachella Valley	14,193	36,122	24.3	19.2
Coachella	7,416	28,320	28.9	29.1
Indio	13,525	35,564	31.5	16.8
La Quinta	27,284	56,848	7.8	5.0
Mecca	6,389	21,250	45.5	43.0

Source: U.S. Census Bureau, 2000b.

Table 5.16 – Housing, labor force, and employment, 2000

Area	Housing units				Labor force	
	Total occupied	Percent substandard[1]	Total	Percent substandard[2]	Percent in labor force[3]	Unemployment rate (percent)
California	11,502,870	15.2	12,214,549	0.9	62.4	7.0
Torres-Martinez Reservation	859	59.3	934	10.4	63.8	11.9
Riverside County	506,218	12.7	584.674	0.8	58.2	7.5
Coachella Valley	32,877	29.1	38,953	1.2	57.8	9.7
Coachella	4,777	50.8	4,982	1.7	58.3	11.7
Indio	13,888	27.0	16,899	0.8	58.3	8.2
La Quinta	8,455	6.3	11,763	0.2	61.6	3.7
Mecca	1,058	54.0	1,058	0.9	65.9	15.0

[1] 1.01 or more occupants per room.
[2] Lacking complete plumbing facilities.
[3] Population 16 years and over in the labor force.
Source: U.S. Census Bureau, 2000c, 2000d, 2000e.

Environmental Consequences

This section addresses whether any group of people, including racial, ethnic, or socioeconomic group, would bear a disproportionate share of adverse impacts as a result of implementing an alternative.

The immediate Coachella Canal Area and other communities potentially affected by implementation of the RMP contain high percentages of racial and ethnic minorities and persons and families below the poverty level. Generally,

unemployment is much higher than in other areas of the State. Consequently, the potential exists for low-income and minority populations to be disproportionately affected.

Alternative A

Effects on environmental justice under the No Action Alternative would be the same as under current conditions.

Alternative B

Effects on environmental justice would be the same as under the No Action Alternative.

Alternative C

Maximizing recreation facility development and providing increased recreational opportunities would provide greater potential for short-term employment for minority or low-income individuals. Balancing free public access and use of study area lands and facilities for recreation with those with fees for public access and use would enable and perhaps encourage low-income individuals to use them.

Alternative D

Limited development of recreation opportunities and facilities could provide limited short-term employment for minority or low-income individuals. Without a requirement to balance free public access and use of study area lands and facilities for recreation with those with fees, imposition of fees for access and use would likely preclude use by low-income individuals.

Mitigation

No mitigation has been identified.

Residual Impacts

No residual impacts have been identified.

Cumulative Impacts

No adverse cumulative impacts have been identified under the preferred alternative. Over the long term, natural and cultural resources would benefit.

Unavoidable Adverse Impacts

Unavoidable adverse impacts are those environmental consequences that cannot be avoided, either by changing or mitigating the action. None of the alternatives are expected to have unavoidable adverse impacts.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are decisions affecting renewable resources, such as soils, wetlands, and riparian areas. Such decisions are considered irreversible because their implementation would affect a resource that has deteriorated to the point that renewal can occur only over a long period of time or at a great expense, or because their implementation would cause the resource to be destroyed or removed.

Irretrievable commitments of natural resources occur when a decision causes a loss of production or use of resources. They represent opportunities foregone for the time that a resource cannot be used.

None of the alternatives would result in irreversible or irretrievable commitments of resources.

Relationship Between Short-Term Uses and Long-Term Productivity

For this Federal action, short term is defined as the 10-year planning life of the RMP, during which time the proposed management actions will be accomplished. Although rehabilitating and revegetating certain OHV areas to their natural state may require more than 10 years, the process will begin during this short-term, 10-year planning period.

Long term is defined as any time period beyond the 10-year planning life of the RMP and the remaining life of the Boulder Canyon Project Act. As long as the Boulder Canyon Project Act is used for its congressionally authorized purposes and other legal requirements, pressure on the natural resources within the Coachella Canal Area will continue. This long-term pressure can be attributed to (1) urbanization of the surrounding communities, (2) Reclamation's effort to accommodate visitor use through development of public use facilities, and (3) the use of Coachella Canal for Project beneficiaries.

The proposed management actions are intended to protect critical habitat and special status species and reverse the deterioration of the environment occurring

under current conditions. It is assumed that the short-term and long-term goals and objectives for managing the study area would not change over time, and there would be no long-term loss of productivity of the natural and social environment.

Chapter 6
Resource Management Plan

Introduction

Reclamation followed a formal planning process to complete this planning and environmental compliance document. On the basis of the issues identified, Reclamation analyzed possible management alternatives for the study area. As discussed briefly in chapter 4, Reclamation originally formulated a No Action Alternative and three action alternatives that described a change in management strategy. These alternatives were presented to the public for review and comment. After considering public comments and internal review by Reclamation, Alternative D was modified and selected as the preferred alternative. The modified Alternative D, Natural Resources Conservation/Protection with Limited Development, is the preferred alternative described in this chapter. (See **map 6.1, Final Resource Management Plan Map.**)

Plan Development

Reclamation has the primary stewardship responsibility to manage the lands under its jurisdiction in accordance with existing laws, regulations, and policies and guidelines. The goals and objectives and management actions outlined in this chapter must be met in an environmentally and economically sound manner. A primary step in the planning process was to identify goals and objectives and associated management actions needed to address identified issues and concerns that would not conflict with existing laws, regulations, and policies and guidelines. In addition, many of the goals and objectives and management actions were formulated in response to basic land management principles and concepts. Pursuant to NEPA requirements, potential effects of implementing certain combinations of management actions (i.e., "alternatives" or management plans) were analyzed; and the results disclosed. The basic challenge was to select those combinations of goals and objectives and management actions that were widely accepted by the public and agency personnel; could be implemented without serious conflicts, within the environmental resource limitations and within the planning life of the RMP; and were consistent with existing laws, regulations, and policies and guidelines.

The RMP assumes that Reclamation will follow existing and future Federal laws, regulations, and Executive orders when managing lands within the study area. **Attachment E** provides a partial list of applicable Federal laws, regulations, and Executive orders.

Management Actions to Implement the Resource Management Plan

Certain management actions were identified during the planning process that would facilitate the management of the 3,990 acres within the Coachella Canal Area study area boundary. The following information sets forth the management actions that Reclamation will implement within the 10-year planning life of this RMP. Specific management actions and the goals and objectives for each of the eight issue categories are provided in this chapter. Environmental commitments listed following this chapter also may be considered as management actions that would be accomplished when implementing the preferred alternative.

Goals and Objectives

As stated previously, Reclamation developed goals and objectives in direct response to the issues and concerns identified through the planning and NEPA compliance process. A *goal* is a general statement that describes the desired future condition that is expected to be achieved once the RMP is fully implemented. An *objective* is a brief statement that describes a broad-based strategy that can accomplish a goal.

Specific Management Actions

Each set of goals and objectives outlined in this chapter is accompanied by specific management actions that will facilitate completion of the objectives. The management actions are grouped to show their relationship to the identified issue categories and to the associated goals and objectives. In many instances, a particular management action that has been identified in one issue category cannot be implemented successfully without implementing a management action from another issue category (e.g., many of the land use management actions under the Land Use Issue Category cannot be implemented without implementing some of the management actions included in the Partnership Issue Category). **Attachment F** is a summary table of the proposed elements and management actions contained in the preferred resource management plan.

Many of the actions may be specific, while other actions may be broad and intended to initiate other actions that are needed to achieve the desired future condition. Examples of other actions needed are to: (1) seek additional recreation managing partners, (2) cooperate with State, county, local entities, and other Federal entities to accomplish certain action items, (3) prepare a fire management plan, and (4) encourage existing and potential partners to provide interpretation and carrying capacity information.

Implementation of the action(s) is ultimately the responsibility of Reclamation contingent upon appropriations from the Congress and other funding sources, if available. Some actions may be accomplished in cooperation with other entities or organizations.

The following section lists the goals, objectives, and management actions for each of the eight issue categories: general management, land use, partnership, Boulder Canyon Project Act, natural and cultural resources, recreation management, public information and education, and public health and safety.

General Management Issue Category

As stated previously, general management issues and concerns focused on developing a 10-year management strategy that takes into consideration mandated Federal laws, rules, regulations, and Executive orders, Reclamation's Policies and Directives and Standards as well as State and county laws, regulations, and ordinances. Meeting the goal and objectives established for this issue category will allow Reclamation to manage the study area lands pursuant to existing authorities and Reclamation programs.

General Management

Goal	*Objectives*
A management strategy that adheres to all legal requirements and appropriate land use principles and procedures and meets public needs and expectations.	1. Develop a management strategy that takes into consideration all legal requirements, appropriate land use principles and procedures, and meets public needs and expectations. 2. Protect the Boulder Canyon Project Act authorized purposes. 3. Establish and use appropriate guidance, procedures, and legal requirements when managing resources and programs on lands within the study area. 4. Establish a strategy to ensure the goals and objectives of the RMP are fulfilled. 5. Cooperate with appropriate government entities to assist in the management of the study area.

Specific Management Actions – General Management

- Operate lands within the study area for Boulder Canyon Project Act congressionally authorized purposes.

Specific Management Actions – General Management (continued)

- Manage study area lands using Reclamation's Policies and Directives and Standards, as well as existing and future Federal laws, regulations, and Executive orders. Reclamation manuals are discussed later in this chapter.
- When appropriate, follow existing and future State, county laws, regulations, and ordinances.
- Consider soil conditions and other limiting factors and adjacent land use when placing future facilities on lands within the study area.
- Ensure that public use and facility developments are consistent with the goals and objectives of the RMP and other approved planning documents.
- Ensure that land management decisions are made for the benefit of the Project and the general public.
- Conduct periodic land management reviews and other monitoring efforts to ensure lands are managed pursuant to existing agreements and land use authorizations.
- Conduct site-specific NEPA compliance and obtain all environmental clearances for proposed land uses to ensure surface water and ground water quality and other natural resources are protected.
- Monitor the variety of authorized land uses to identify user conflicts and immediately investigate corrective measures to prevent further conflicts, if necessary.
- Cooperate with CVRPD, Riverside County, and other potential qualified partners in expanding recreation opportunities to meet anticipated public need within the study area.
- Implement the RMP management actions within the 10-year planning period.

Land Use Issue Category

As stated previously, land use issues and concerns focused on developing a land use strategy that would attempt to accommodate the increased demands of local communities, private developers, and the public while protecting the natural and cultural resources and the Boulder Canyon Project Act congressionally authorized Project purposes. Meeting the goals and objectives established for this issue category will allow Reclamation to meet the needs of local communities within the resource limitations and prior legal and legislative requirements while protecting the natural and cultural resources and Project purposes.

Land Use

Goal	*Objectives*
An established land use strategy that protects Project purposes and resources and allows for continuance of existing authorizations and limited expansion.	1. Consult with appropriate entities prior to permitting land use authorizations on lands within the study area. 2. Limit the numbers and types of land use authorizations to those that are compatible with area resources and Project purposes. 3. Honor existing commitments and eliminate incompatible uses. 4. Consistently follow established policy and procedures.

Specific Management Actions – Land Use

- Continue with the current level of noxious weed control within the study area.
- Follow appropriate procedures when issuing land use authorizations on Reclamation lands where easements have been acquired from an underlying fee owner.
- Follow the updated 2001 Federal Fire Management Policy and the Secretary of the Interior's 2001 policy letter and develop a fire management plan for all Coachella Canal Area lands.

When issuing new land use authorizations, Reclamation will:

- Follow existing right-of-use authorization application requirements and procedures when processing land use proposals and requests.
- Allow only those land uses that do not adversely affect Reclamation and CVWD project features or the delivery of water to the Coachella Canal water users.
- Cooperate with adjacent landowners to ensure that land uses authorized on Reclamation lands are compatible with adjacent land uses.
- Prohibit private, exclusive use of Reclamation lands within the study area pursuant to Reclamation's Policies and Directives and Standards.
- Prohibit land uses that adversely affect Indian trust assets unless proper mitigation measures are achieved and all environmental clearances have been obtained.
- Avoid Indian sacred sites and traditional cultural properties.
- Prohibit land uses that adversely affect threatened and endangered or other special status species or critical habitat unless proper mitigation measures are achieved and all environmental clearances are obtained.
- Issue land use authorizations that allow for limited developments that do not adversely affect natural and cultural resources or Project purposes.
- Enter into agreements with non-Federal government entities for planning, developing, and managing additional recreation facilities and opportunities.

Specific Management Actions – Land Use (continued)

When continuing existing land use authorizations, Reclamation will:

- Honor the terms and conditions of the agreement with CVWD for the care, operation, maintenance, and replacement of the Coachella Canal and associated Project water delivery features. Agreement is in perpetuity.
- Honor the terms and conditions of the agreement with Riverside County for recreation management of the recreation complex at Lake Cahuilla. Agreement expires in 2026.
- Honor the terms and conditions of the agreement with CVRPD for management of three separate recreation sites within the study area. Agreement expires in 2026.
- Honor the terms and conditions of existing land use authorizations addressing, among other things, bridges, access roads, crossing agreements, fences, power and transmission lines, telephone lines, and water and power pipelines. Copies of existing agreements are on file with the Yuma Area Office in Yuma, Arizona.
- Phase out land uses that are not compatible with Project purposes.

Partnership Issue Category

As stated previously, partnership issues and concerns focused on the need to create sustainable partnerships with qualified non-Federal government entities and special interest groups to assist Reclamation in the management of the study area lands. Meeting the goals and objectives established for this issue category will assist Reclamation in securing managing partners to help manage the natural and cultural resources and public use in the study area.

Partnership

Goal	*Objectives*
Encourage and support partnerships that assist in Reclamation's management of the study area and in fulfilling the goals and objectives of the RMP.	1. Pursue and support partnerships to facilitate best management of the resources and that benefit the partners and the users of the study area. 2. Pursue and support partnerships to enhance recreation services and facilities compatible with Project purposes. 3. Expand efforts to seek trail partnerships to establish trails within the study area.

Specific Management Actions – Partnership

- Cooperate with CVWD in the care, operation, and maintenance and replacement of the Coachella Canal protective works and water delivery system.
- Cooperate with CVRPD in its efforts to fully develop and operate and maintain three recreation sites within the study area that Reclamation has leased to CVRPD.
- Cooperate with Riverside County in its efforts to improve, operate, and maintain an existing recreation complex at Lake Cahuilla and to authorize expansion of needed facilities on Reclamation lands to meet recreation demand in the Coachella Valley.
- Coordinate mosquito abatement activities within the study area with Coachella Valley Mosquito and Vector Control District.
- Explore opportunities to work with qualified recreation partners to manage additional recreation activities within the study area. Refer to **figure 6.1** for a schematic showing the process that should be followed to secure a potential recreation partner in developing new recreation facilities and lands within the study area. The schematic also represents the process that should be followed in rehabilitating existing recreation facilities with existing partners.
- Expand efforts to seek trail partnerships with local entities and local trail user interest groups to help identify alternatives and local needs and expectations in providing a limited number of non-motorized, multi-use trails within the study area.
- Cooperate with BLM on issues of mutual concern and in identifying lands within the study area that may be returned to BLM for its management. Initiate efforts to cooperate with BLM on identifying legal access across Reclamation lands or interest in lands so that access to recreational trails and public use areas on BLM lands east of the study area are not hindered.
- Cooperate with BLM on managing unauthorized OHV use on lands with common borders.
- Consult with the Service pursuant to the ESA. Continue to work with the Service and other concerned entities on mutually agreed upon tamarisk removal and mesquite restoration projects.
- Work with the local entities in the Coachella Valley such at the cities of Indio, La Quinta, Coachella, Thermal, and Mecca on matters of mutual concern.
- Cooperate with the California Department of Fish and Game on special status species and habitat management within the study area.

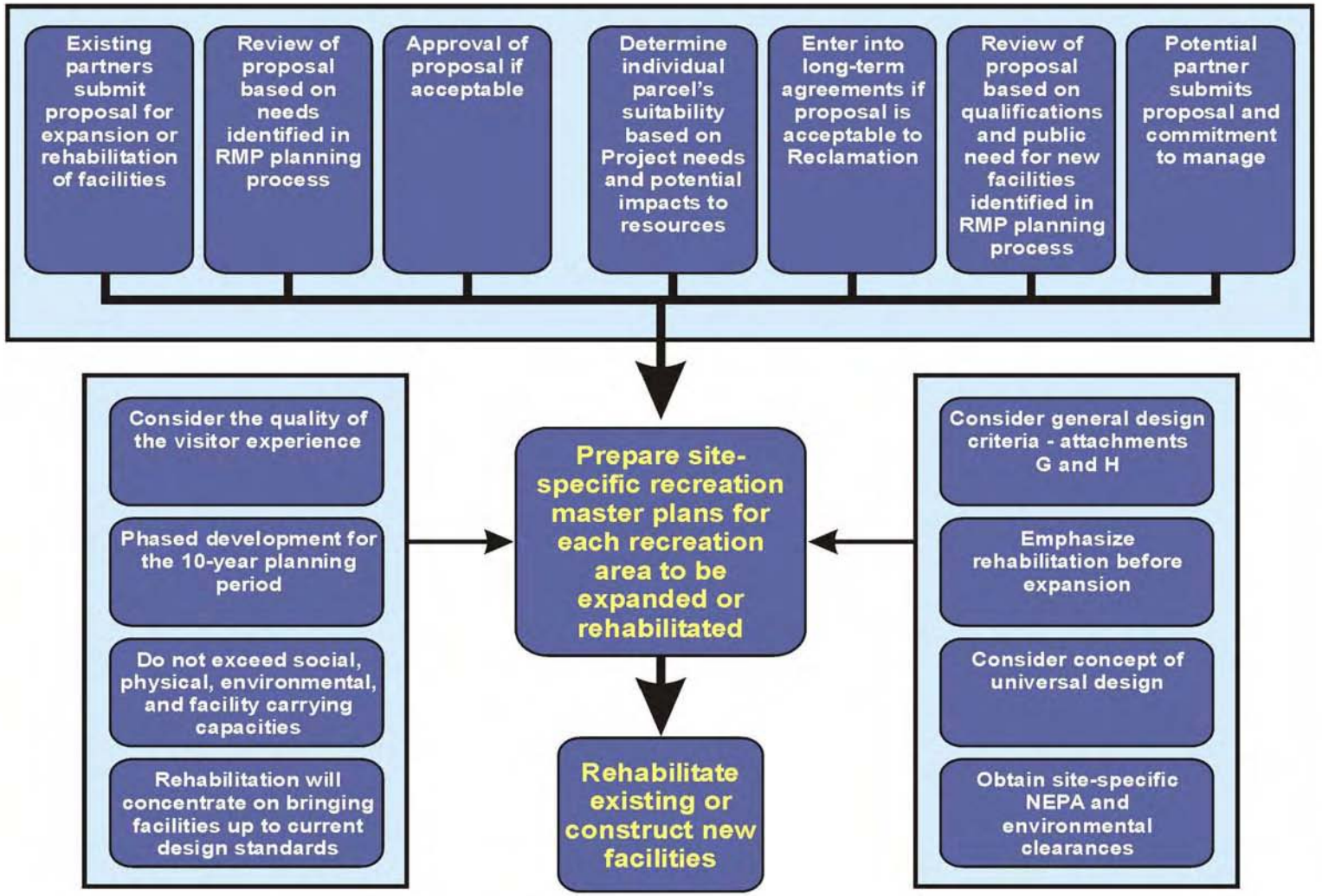

Figure 6.1 – Process to secure a potential recreation partner in developing new recreation facilities and lands within the study area and to authorize expansion or rehabilitation of existing facilities by existing partners.

Boulder Canyon Project Act Issue Category

As stated previously, Boulder Canyon Project Act issues and concerns focused on developing a land management strategy that would not interfere with CVWD's ability to operate and maintain a Federal water project authorized by the Congress. Meeting the goal and objective established for this issue category will allow Reclamation and CVWD to cooperatively manage the study area for Project purposes and in an environmentally sound manner while at the same time accommodate the growing public and private demands being placed on Coachella Canal Area lands.

Boulder Canyon Project Act

Goal	*Objective*
Develop a strategy that allows for the protection of Project purposes while allowing land uses that meet public need.	1. Designate certain parcels within the study area for Project purposes as well as parcels for recreation and other purposes.

Specific Management Actions – Boulder Canyon Project Act

- CVWD will continue to operate the Coachella Canal Area for the primary purpose of delivering water for agricultural and other Project beneficiaries.
- CVWD will continue to cooperate with Reclamation in efforts to process land use requests that are compatible with, and do not adversely affect, Project purposes as well as natural and cultural resources within the study area.
- Reclamation and CVWD will retain parcels B, C, D, E, F, G, H, I, J, K, L, M, and R for potential borrow pits to be used for Project purposes.
- CVWD will use acceptable stabilization techniques for active borrow pits to ensure that offsite impacts are avoided.
- Reclamation will work with CVWD to reclaim unused or abandoned borrow pits after a reasonable period of non-use.
- Reclamation and CVWD will retain parcel H for a potential water treatment facility for the benefit of the Project and water conservation purposes.
- Reclamation and CVWD will retain parcels O and P to be used in conjunction with Lake Cahuilla (terminal reservoir for the Coachella Canal).
- CVWD will continue to use all canal access roads for the operation and maintenance of the Coachella Canal.
- CVWD will continue to use parcels G, I, J, K, L, M, Q, R, S, and T for protective dike purposes.
- Reclamation and CVWD will continue to retain parcel F for Imperial Irrigation District's management of an electrical substation.
- Reclamation and CVWD would continue to retain a portion of parcel U for Project purposes. Refer to page 51, last bullet, for further explanation of parcel U.

Note: Refer to Recreation Issue Category Specific Actions for parcels to be used for recreation related activities.

Natural and Cultural Resources Issue Category

Natural and cultural resource management issues and concerns focused on protecting cultural resources and avoiding or mitigating cultural resource impacts and protecting and restoring high value desert vegetation and associated wildlife including habitat for special status plants and wildlife. High value habitat includes relatively undisturbed desert shrub and desert wash vegetation, aeolian sand fields, riparian cottonwood-willow oasis, and fan palm oasis. Meeting the goals and objectives established for this issue category will allow Reclamation to develop a strategy that effectively manages the natural and cultural resources within the study area.

Natural and Cultural Resources

Goal	*Objectives*
Protection and restoration of the unique desert habitats and associated special status species.	1. Conduct site-specific NEPA and ESA compliance for all proposed land uses and developments. 2. Develop and implement management strategies to protect and restore habitats. 3. Establish buffer zones or other measures to avoid conflict with or damage to critical habits and special status species.
Goal	***Objectives***
Protect, avoid or mitigate the impacts to existing cultural resources.	1. Conduct NEPA and other environmental compliance activities. 2. Consult with appropriate entities to ensure compliance with cultural resource laws, regulations, and Executive orders.

Specific Management Actions – Natural and Cultural Resources

To implement the goal and objectives for protecting and restoring unique desert habitats and associated special status species, **when required or when possible**, Reclamation will:

- Identify and work with Federal and non-Federal partners developing and implementing management strategies to protect and restore habitats.
- Conduct NEPA and ESA compliance for all land use proposals which include commitments to avoid high quality habitat and mitigation of adverse affects.
- Conduct intensive inventories of habitat which includes mapping and habitat quality assessments in sand and desert shrub habitats.

Specific Management Actions – Natural and Cultural Resources (continued)

- Conduct presence/absence surveys for special status species in sand and desert shrub habitats.
- Conduct long-term monitoring of habitat conditions and special status species in sand and desert shrub habitats.
- Protect high value habitats with such measures as signs, interpretation, fencing, OHV restrictions, road closures, and enforcement of dumping.
- Develop a restoration plan which includes measures to control invasive plants, establish stands of native plants, repair OHV damage, clean up illegal dump sites, and conduct monitoring to determine restoration success.
- Implement measures to protect Peninsular bighorn sheep. Identify key habitat and disturbance buffers. Restrict all developments in key habitats and allow only passive recreation use[1] in adjacent buffer habitat. Implement seasonal closures if necessary and install interpretive signs. Formulate stipulations (poisonous plant restrictions) for land exchanges and recreational developments near key habitat.

To implement the goal and objectives for protecting cultural resources and avoiding or mitigating cultural resource impacts, Reclamation will:

- Consult with the California State Preservation Office under section 106/110 of the National Historic Preservation Act.
- Conduct opportunistic inspections of cultural resource sites and locales as personnel and time are available.
- Complete site-specific cultural resource investigations of RMP development and restoration efforts when compatible with current Project needs and purposes.
- On a case-by-case basis or as required as part of a mitigation requirement, implement interpretation at sites for public interest and education.
- Consult with area Indian tribes and BIA concerning Indian trust assets, Indian sacred sites, and traditional cultural properties.
- When actions would affect a Register-eligible site or when planning actions could result in significant new impacts to Coachella Canal Area lands, consult with appropriate Indian tribes to determine if they have cultural resource concerns or are aware of traditional cultural properties.

Recreation Management Issue Category

As stated previously, recreation management issues and concerns focused on managing unauthorized OHV use; providing non-motorized, multi-use trails; providing recreation access across Reclamation lands to adjacent lands; and providing recreation facilities and opportunities to meet the growing outdoor

[1] Passive recreation is defined as recreational opportunities that occur in a natural setting that require minimal development or facilities. The importance of the environment or setting for the activities is greater than in developed recreation settings. Examples of passive recreation activities include walking, bicycling, horseback riding, bird watching, and photography.

recreation demand in the Coachella Valley. Meeting the goals and objectives established for this issue category will allow limited recreation development within the study area, eliminate unauthorized OHV use, and provide access to adjacent public lands for recreation and other beneficial uses.

Recreation Management

Goal	*Objectives*
A limited number of quality recreation facilities and opportunities and appropriate access to adjacent public lands.	1. Work with existing partners and potential partners in maintaining existing facilities and expansion of new opportunities. 2. Prepare appropriate planning documents detailing level of development. 3. Establish appropriate capacity information prior to development. 4. Provide interpretive information related to the study area. 5. Designate parcels within the study area that can be used for recreational purposes.

Specific Management Actions – Recreation Management

- Reclamation's recreation managing partners will provide appropriate information related to social, physical, environmental, or facility capacities for proposed developments.
- Existing and potential recreation partners will prepare and submit appropriate recreation planning documents to Reclamation and obtain appropriate environmental clearances prior to any facility development. Again, see **figure 6.1** for the process to follow in developing, replacing, or rehabilitating recreation facilities within the study area.
- Encourage existing and potential recreation partners to provide interpretation of the natural resources, wildlife, and Project purposes to better inform and educated the public.
- Reclamation and its partners will provide an appropriate level of interpretation as required to fulfill mitigation measures associated with Project and recreation facility development.
- As stated in the Partnership Issue Category, Reclamation will authorize expansion of recreation facilities and opportunities in cooperation with existing and qualified partners.
- When planning for recreation development, follow up-to-date design standards and criteria. **Attachment G** provides criteria for facility development.

Specific Management Actions – Recreation Management (continued)

- As stated in the Partnership Issue Category, cooperate with BLM on identifying legal public access across Reclamation lands to BLM lands east of the study area.

Reclamation and CVWD will retain and make the following parcels of land within the study area available for recreation purposes:

- Parcels E, K, R and portions of S and T will be made available to CVRPD for management of its three separate recreation areas pursuant to an existing lease agreement between Reclamation and CVRPD that expires in 2026.
- Parcels A, B, C, D, E, F, I, J, K, L, and M will continue to be made available for open space[1] and passive types of recreation activities.
- Parcels E and F may be used for recreation facility development after review of potential impacts to resources and Project purposes and subject to site-specific NEPA compliance.
- Parcels O and P will continue to be made available for recreation use and development by Riverside County pursuant to an existing lease agreement between Reclamation and Riverside County that expires 2021.
- Depending on the land status, Reclamation will assess plans submitted by existing and potential qualified recreation partners for using remaining Project lands for outdoor recreation purposes (i.e., open space and passive recreation or recreation facility development). See **figure 6.1** for the process in accessing the suitability for using lands within the study area for recreational purposes.

To address unauthorized OHV use within the study area Reclamation will:

- Eliminate OHV use within the study area except for emergency situations (i.e., search and rescue and fire suppression vehicles). Reclamation lands are closed to OHV use unless officially opened through a public involvement and planning process.
- As funding becomes available, Reclamation will close and rehabilitate unauthorized OHV roads and trails as well as other degraded use areas.
- Restrict vehicle use to existing public roads.
- In cooperation with other entities, install needed fencing and barriers and proper signage to prevent future OHV use.

In developing trails on study area lands, Reclamation will:

- Cooperate with a single non-Federal government entity or multiple entities in authorizing a limited number of non-motorized trails using strict development criteria to ensure that trails and trail users do not adversely affect natural and cultural resources, wildlife, critical habitat, or CVWD project features or purposes.
- Design portions of trails to accommodate a variety of trail users, such a hikers, bicyclist, joggers, and equestrians.

[1] Open space is defined as a parcel of land that has public value because the land offers important opportunities for recreation. Open space may also have value as a visual amenity to the landscape or backdrop of an outdoor natural setting.

Specific Management Actions – Recreation Management (continued)

- Ensure trail development follows appropriate design standards, including the Americans with Disabilities Act guidelines and standards. Refer to **attachment H** for a list of possible trail development criteria that should be followed when developing trails on study area lands.

Public Information and Education Issue Category

As stated previously, public information and education issues and concerns focused on providing a variety of information about the study area; providing appropriate signing detailing the rules and regulations for the use of Reclamation lands; and providing a limited variety of interpretative opportunities for the recreating public. Meeting the goal and objective established for this issue category will allow Reclamation to sufficiently inform the public of the rules and regulations within the study area and inform and educate the public about the natural resources and Project features within the study area.

Public Information and Education

Goal	*Objective*
A sufficient level of information to enable the visiting public to have a safe and enjoyable recreational experience.	1. Work with existing and potential partners in providing environmental interpretation and education services to the public.

Specific Management Actions – Public Information and Education

- Encourage existing and future partners to use a variety of media to communicate with the public, including printed materials, maps, photographs, brochures, and Web sites.
- Encourage partners to provide additional programs for public enjoyment (e.g., wildlife observation and interpretative programs).
- Encourage existing and qualified potential recreation partners to provide an appropriate level of interpretation services to inform and educate the public about the unique natural and cultural resources and Project features and purposes of Boulder Canyon Project Act.
- Inventory signing needs within the study area and, as needed, post bilingual signs with rules and regulations regarding the use of Reclamation lands.
- As needed, post bilingual OHV closure signs at areas that have been closed to unauthorized OHV users.

Public Health and Safety Issue Category

As stated previously, public health and safety issues and concerns focused on providing an appropriate level of enforcement of the rules, regulations, and land restrictions and removing trash from the study area and preventing this unauthorized use in the future. Meeting the goal and objective established for this issue category will provide a safe and healthy environment for visitors within the study area.

Public Health and Safety

Goal	*Objective*
A safe and healthy environment for visitors.	1. Increase efforts to inform the public of rules and regulations and be proactive in efforts to protect the health and safety of the public.

Specific Management Actions – Public Health and Safety

- Increase efforts to enforce rules and regulations to discourage unauthorized use within the study area and promote proactive law enforcement activities.
- Cooperate with Coachella Valley Mosquito and Vector Control District in its effort to reduce or eliminate conditions conducive for mosquito breeding.
- Continue with the Crime Witness Protection Program.
- Increase efforts to remove existing trash from the study area and increase efforts to keep Coachella Canal Area lands free of trash through signing and strict enforcement.
- Continue to ensure that visitor health and safety is the main focus during any facility development.
- As needed, post bilingual warning signs.
- Install proper fencing to protect the health and safety of the public and Project features and structures.

Plan Implementation

Implementation of the RMP is primarily the responsibility of Reclamation. Approval and acceptance of the RMP/EA by involved agencies include a commitment by Reclamation, and other entities where appropriate, to seek financial, program, and staffing resources necessary to implement the proposed management actions. Because funding is uncertain, implementation of specific actions will require close coordination between Reclamation and the many other parties (stakeholders) interested in the management and use of Coachella Canal Area lands.

Other factors that may influence the implementation of a particular action are based on whether the action: (1) is procedural or technical, such as preparing agreements or developing specific plans; (2) addresses public health and safety concerns; (3) is in compliance with existing laws and regulations; (4) is required to prevent resource damage or protect wildlife or habitats; or (5) requires large capital investments, such as trail or facility development.

Guidance and Standards

To initiate and implement Reclamation's recreation and land management programs, specific guidance or standards will be followed. The guidance and standards are in the form of Federal laws and regulations, Executive orders, CFRs, existing agreements, State and local laws and regulations, best management practices, or other directives. In many instances, the Policies and Directives and Standards will be in the *Reclamation Manual* for a specific program. Reclamation will follow all Federal laws, regulations, and Executive orders, some of which are mentioned in chapter 1 and attachment E.

Reclamation also will follow the guidance provided in its published manuals, the most important of which are the following Policies and Directives and Standards related to:

- Pest Management/Resource Protection (Integrated Pest Management), ENV 01-01
- Underground Storage Tank Management, ENV 02-011
- Pollution Prevention - Hazardous and Solid Waste Minimization, ENV 02-041
- Management of Shooting Ranges on Reclamation Lands, ENV 02-071
- Implementation of the Cost Sharing Authorities for Recreation and Fish and Wildlife Enhancement, LND 01-011
- Cultural Resources Management, LND 02-011
- Land Withdrawals, Withdrawal Reviews, and Withdrawal Revocations, LND 03-011
- Concessions Management by Non-Federal Partners, LND 04-021
- Real Estate Appraisal, LND 05-011
- Land Acquisition, LND 06-011
- Land Use Authorizations, LND 08-011

- Land Disposal, LND 08-02
- Real Property Management Records, LND 09-10

For more detailed information, access Reclamation manuals at <http://www.usbr.gov/recman/>.

Monitoring

To track the success of implementing management actions, monitoring activities will be initiated (i.e., how to evaluate, observe, enforce, comply, or document that a management action is achieved). Monitoring will occur on a regular basis and will be conducted by qualified personnel.

Following is a partial list of possible reviews and monitoring efforts that may help Reclamation track the success of implementing certain management actions:

- Real Property Utilization Reviews
- Recreation Compliance Reviews
- Withdrawal Reviews
- Hazardous Waste Management Reviews
- Land Use Authorization Reviews
- Review of Pest Management/Resource Protection Plans
- Water Quality Monitoring
- Ground Water Level Monitoring
- Facility Condition Assessments
- Accessibility Reviews
- Review/Monitoring of Underground Storage Tanks

In addition to the above-mentioned monitoring activities, which Reclamation routinely conducts on its lands and which will help in identifying the success of implementing a particular management action, Reclamation should consider the following:

- Ensuring that the public use and facility development are consistent with the goals and objectives of an approved planning document.
- Closing areas for public safety and security purposes, as a result of monitoring efforts. However, it is Reclamation's goal to properly monitor public use of its lands to prevent such closures from happening.
- Ensuring that Project features are protected by restricting public use as a result of monitoring efforts.
- Conducting periodic land management reviews and other monitoring efforts to ensure that the lands are being managed pursuant to existing agreements and land use authorizations.

- Monitoring the variety of land uses to identify user conflicts and investigate corrective measures to prevent further conflicts from occurring.

Reclamation will use a combination of the above-mentioned monitoring efforts and considerations in cooperation with involved entities to track the success of management initiatives.

Amendments and Modifications to the RMP

Reclamation may revise or amend the RMP within the established 10-year planning period. During the implementation or monitoring phases of the RMP, Reclamation, other agencies, or the public may identify problems, deficiencies, or additional issues that should be addressed. Changes in the social, economic, physical, or environmental conditions may also necessitate changes to the RMP. Minor changes in data or material that do not conflict with the established goals and objectives would be documented by Reclamation and would not require further public involvement and NEPA compliance. Changes that would modify one or more of the prescribed decisions and require major changes to the established goals and objectives would be documented by an amendment to the RMP and may require further public involvement and NEPA compliance. Reclamation will determine the level of public involvement and NEPA compliance.

The RMP is expected to be re-evaluated at the end of the 10-year planning period to determine whether or not the RMP should be revised. The planning and NEPA process used to complete this RMP/EA will be used to prepare an updated RMP/EA if one is needed.

Environmental Commitments

Surface Water and Ground Water

Prior to implementing a proposed project, proponent will prepare and have a storm water pollution prevention plan onsite to prevent and/or minimize a spill or storm event impacting the project vicinity.

Land Use

All new land use authorizations/crossing agreements will need to comply with NEPA, ESA, and National Historic Preservation Act of 1966, as amended, requirements.

Special Status Species

No intensive surveys have been conducted for the special status species listed in table 5.4. However, during the reconnaissance-level inventory in April 2004, Reclamation biologists identified habitat within RMP lands that has potential to be suitable habitat for several species. The following lists general mitigation measures that would apply to projects that affect vegetation, wildlife, and special status species. In addition, management actions that protect and restore habitat are summarized.

- Prior to all proposed projects, site-specific NEPA and ESA compliance would be conducted. If potential habitat for special status species is identified in the affected environment, surveys would be conducted to ascertain presence/absence of special status species and to determine habitat quality, and detailed protective measures would be developed and implemented. At that time, assessment of the quality and quantity of the affected vegetation and general wildlife community would be determined.
- To the extent possible, surface-disturbing projects would be located outside of high-valued habitat and occupied habitat of special status species and be timed to avoid mortality. Prior to construction, a protection plan would be developed specific to the vegetation, wildlife, and special status species within or adjacent to the project area.
- Project work areas in and near habitat for special status species would be clearly marked to avoid impacts, and a biological monitor would work with construction personnel to ensure that all protective measures are implemented.

- Project proponents would develop a habitat restoration plan that includes collecting and replacing topsoil; preparing seedbeds, seeding with native plant species, weed control, erosion control, and regularly monitoring the effectiveness of such measures.

- Existing roads and previously disturbed areas would be used for travel and equipment storage to the maximum extent possible.

- If adverse effects remain after the project proponent has taken all reasonable onsite mitigation measures, compensation would be made for residual effects.

- In addition to measures listed above, any recreational site development would require measures to inform the public of the value of special status species and habitat as well as restrictions against collecting, harassing, and harming. Trail development would avoid direct impacts to occupied habitat.

Following are general natural resource management mitigation:

- High value vegetation communities and general wildlife habitat would be protected with such measures as signs, interpretation, fencing, OHV restrictions, road closures, and enforcement of dumping.

- A restoration plan would be developed that includes measures to control invasive plants, establish stands of native plants, repair OHV damage, clean up illegal dump sites, and conduct monitoring to determine restoration success.

- Measures would be developed to protect Peninsular bighorn. Identify key habitat and disturbance buffers. Restrict all developments in key habitats and allow only passive recreation use in adjacent buffer habitat. Implement seasonal closures if necessary and install interpretive signs. Formulate stipulations (poisonous plant restrictions) for land exchanges and recreational developments near key habitat.

- Develop an invasive plant management plan that includes inventory, determination of control feasibility, integrated control of target species in selected areas, facilitation of research of experimental control methods, and long-term monitoring.

- Implement measures to protect and restore riparian oasis, which could include fencing, cleanup of dump sites, surface water improvements (quantity and quality), cottonwood/willow plantings, and salt cedar control.

- Implement measures to protect and restore mesquite hummocks which could include fencing, cleanup of dump sites, surface mesquite plantings, and control of noxious weeds.

Recreation

Recreation facility development will complement the surrounding landscape as much as practical and follow strict design and construction criteria, guidelines, and standards. Carrying capacity limits and user demand will be properly determined before major facility developments occur. Regulatory and informational signage will be posted throughout the area, informing the public of the rules and regulations governing the use of the federally owned lands within the study area.

Transportation

Under all alternatives, easements, rights-of-way, or other instruments to authorize transportation routes will contain specific stipulations to protect existing resources, decrease potential conflicts with adjacent landowners, and prevent land use conflicts within the study area.

Air Quality

Potential adverse air quality impacts would be associated with construction of recreation facilities and trails and the use of borrow pits. However, because the RMP is at the programmatic level, specific details of these activities are not appropriate; thus, associated emissions cannot be analyzed. Prior to implementation of any of these activities, site specific environmental compliance will be completed. Pollutant emissions will be calculated using an appropriate model. Compliance with Federal, State, regional, and local air quality regulations will be required. Measures to reduce or minimize construction air quality effects would be required and included in all construction plans and specifications. Mitigation measures to reduce the amount of dust would likely include using surfactants and other chemical stabilizers, wheel washers for construction equipment, watering down of all construction areas, limiting truck traffic to non-peak hours, etc. Use of these and similar measures would likely reduce particulate matter impacts to less than significant levels.

Cultural Resources

Reclamation, working alone or in partnership with State and/or local government agencies or private entities, would continue to comply with section 106 of NHPA for Federal undertakings, and Reclamation would consult with the SHPO and area Indian tribes, as required by 36 CFR 800, as revised, to locate and identify any cultural resources within the study area's parcels before initiating any Federal undertaking.

Reclamation would do the following:

- In consultation with the SHPO and area Indian tribes—and on the basis of class I survey information—develop a research design for conducting class II or III surveys (1) to determine areas of high or low potential for cultural resources, including traditional cultural properties, (2) to determine sources of impacts, and (3) to define additional investigation or protective actions appropriate for each site. The research design would serve to support request for funding to implement necessary actions.

- Conduct intensive surveys of areas with high potential for cultural resources and/or any areas scheduled for ground-disturbing or potentially ground-disturbing activities to locate cultural resources. During ground-disturbing activities, Reclamation would make every effort to avoid significant cultural resources.

- During construction, if cultural resources are discovered, ensure that work in the immediate areas ceases until a qualified archeologist evaluates the site, takes appropriate measures, and consults with the SHPO.

- Ensure that any project-specific agreements regarding cultural resources are included as specifications in construction contracts and inform construction contractors about the presence of cultural resources within or near the project area and about their protection under Federal and State laws.

- When granting right-of-use authorizations on or across Reclamation-owned lands, review the proposal for potential effects on cultural resources and ensure the entity receiving the right-of-use authorization complies with all applicable cultural resource laws for any activities within the boundaries of the right-of-use authorization.

- Specific mitigation cannot be identified until the intensive surveys are completed, to determine if NRHP-eligible cultural resources are present. The following mitigation strategies presume that one or more cultural properties will be determined eligible for the NRHP and will be affected by the proposed action. The exact nature of mitigation would be

determined in consultation with the SHPO and others, as appropriate, and documented in a memorandum of agreement with the consulting and interested parties.

- Periodically monitor NRHP-eligible or unevaluated sites to assess impacts and the need for investigative or protective action.
- Place protective materials over portions of sites affected by erosion or trail construction or use to prevent additional disturbance.
- Recover site data through systematic surface collection or excavation and provide resulting reports to the professional community and interested public.
- Consult further with area Indian tribes about appropriate actions to protect endangered traditional cultural property sites and implement those actions where reasonable and feasible.
- Incorporate information about cultural resources into brochures and other educational materials created for use in the study area.

List of Preparers and Contributors

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Note: Reclamation would like to acknowledge the contribution and support of the entire staff of the Coachella Valley Water District in the preparation of this RMP/EA.

Distribution List

All locations are in the State of California, unless otherwise indicated.

Congressional Delegation

U.S. Senators

Barbara Boxer
Dianne Feinstein

U.S. Representative

Mary Bono
Jerry Lewis

California State Legislature

Senator Jim Battin
Senator Denise Moreno Ducheny
Assemblyman John J. Benoit
Assemblywoman Bonnie Garcia

Indian Tribes

Ak-Chin Indian Community, Maricopa, Arizona
Agua Caliente Band of Mission Indians, Palm Springs
Augustine Band of Mission Indians, Coachella
Cabazon Tribal Business Committee, Indio
Cahuilla Band of Mission Indians, Anza
Colorado River Indian Tribes, Parker, Arizona
Hualapai Indian Tribe, Peach Springs
Morongo Band of Mission Indians, Banning
Pechanga Band of Luiseño Indians, Temecula
Ramona Band of Mission Indians, Anza
Santa Rosa Band of Mission Indians, Anza, Hemet
Soboba Band of Luiseño Indians, San Jacinto
Torres-Martinez Desert Cahuilla Indians, Thermal
Twenty-Nine Palms Band of Mission Indians, Coachella

Federal, State, and Local Agencies

Federal

Department of Agriculture
- Natural Resources Conservation Service, Indio, Riverside

Department of Defense
- U.S. Army Corps of Engineers, Los Angeles, California; Phoenix, Arizona
- U.S. Marine Corps Air Ground Combat Center, Twentynine Palms
- U.S. Marine Corps Air Station, Yuma, Arizona

Department of Energy
- Western Area Power Administration, Folsom, California; Phoenix, Arizona

Department of the Interior
- Bureau of Land Management, El Centro, North Palm Springs
- Coachella Valley National Wildlife Refuge, Calipatria
- Fish and Wildlife Service, Carlsbad, Sacramento
- Office of the Field Solicitor, Palm Springs
- Geological Survey, Sacramento
- Office of Surface Mining, Albuquerque, New Mexico
- Bureau of Indian Affairs, Palm Springs, Riverside

Environmental Protection Agency
- Region 9, San Francisco
- Southern California Field Office, Los Angeles

Federal Aviation Administration
- Western-Pacific Region Airports Division, Los Angeles

State of Arizona

State Parks
- State Historic Preservation Office, Phoenix, Arizona

State of California

Coachella Valley Mountains Conservancy
- Palm Desert

Department of Conservation
- Sacramento

Department of Fish and Game
- Bermuda Dunes, Chino Hills, Sacramento, San Diego

Department of Parks and Recreation
Sacramento
Office of Historic Preservation, Sacramento

Department of Transportation
Division of Aeronautics, Sacramento
Division of Transportation Planning, Sacramento
District 8, San Bernardino
District 11, San Diego

Department of Water Resources
Division of Planning and Local Assistance, Sacramento
Southern District, Glendale

Environmental Protection Agency
Colorado River Basin Water Quality Control Board, Palm Desert

Highway Patrol
Riverside, Sacramento

Lands Commission
Sacramento

Mojave Desert Air Quality Management District, Victorville

Native American Heritage Commission, Sacramento

Public Utilities Commission
Los Angeles, San Francisco

South Coast Air Quality Management District, Diamond Bar

Imperial County

Planning Department, El Centro
Fish and Game Department, El Centro
Air Pollution Control District, El Centro

Riverside County

4th District, Palm Desert
Airport Land Use Commission, Riverside
Board of Supervisors, Riverside
Planning Department, Indio, Riverside
Public Information Office, Riverside

Regional Park and Open-Space District, Riverside
Transportation and Land Management Agency, Riverside
Transportation Department, Indio

City of Blythe

Planning Department

City of Cathedral City

City of Coachella

Department of Community Development
Department of Public Works

City of Desert Hot Springs

Community Development Department

City of Indian Wells

City of Indio

Community Development Department
Community Development Services/Building and Safety

City of La Quinta

Public Works Department

City of Palm Desert

Community Development Department

City of Palm Springs

Department of Planning and Building

City of Rancho Mirage

Libraries

Brawley Public Library, Brawley
Cathedral City Public Library, Cathedral City
Coachella Branch Library, Coachella Valley
Desert Hot Springs Public Library, Desert Hot Springs
Indio Public Library, Indio
La Quinta Public Library, La Quinta
Lake Tamarisk Branch Library, Desert Center
Mecca-North Shore Branch Library, Mecca
Palm Springs City Library, Palm Springs
Palo Verde Valley Library District, Blythe
Rancho Mirage Public Library, Rancho Mirage
Riverside County Library, Palm Desert
Riverside Central Library, Riverside
Thousand Palms Library, Thousand Palms

Interested Organizations and Individuals

Audubon California, Sacramento
California Native Plant Society, Sacramento
Center for Biological Diversity, Berkeley, California; Tucson, Arizona
Coachella Valley Association of Governments, Palm Desert
Coachella Valley Hiking Club, Palm Springs
Coachella Valley Mosquito and Vector Control District, Indio
Coachella Valley Radio Control Club, Palm Desert
Coachella Valley Recreation and Park District, Indio
Coachella Valley Water District, Coachella, Thermal
Coachella Valley Wild Bird Center, Indio
Depalatis Associates, Palm Desert
Desert Protective Council Inc., San Diego
Desert Radio Control Club Inc., La Quinta
Desert Survivors, Oakland
Desert Tortoise Preserve Committee Inc., Riverside
Desert Trails Hiking Club, La Quinta
Desert Water Agency, Palm Springs
Donowho, David, Blythe
Imperial Valley Association of Governments, El Centro
Imperial Valley College Desert Museum, Ocotillo
John Corella and Associates, La Quinta
Kitahara, Russell, Thermal
Lueders, Gary, Palm Springs
Metropolitan Water District, Los Angeles
Mission Springs Water District, Desert Hot Springs
MSA Consulting, Rancho Mirage

National Environmental Strategies, Washington, DC
O'Dowd, Patrick, La Quinta
On - Time, Palm Desert
Palo Verde Irrigation District, Blythe
Public Employees for Environmental Responsibility, Sebastopol
Riverside County Farm Bureau, Moreno Valley
San Bernardino Valley Audubon Society, San Bernardino
San Diego County Water Authority, San Diego
Shea Homes, La Quinta
The Keith Companies, Palm Desert
The Living Desert Zoo and Gardens, Palm Desert
The Nature Conservancy, San Francisco
Thermal Chamber of Commerce, Thermal
Twentynine Palms Chamber of Commerce, Twentynine Palms
Velez, LeGrand, Palm Desert

Glossary

A

acre-foot: The volume of water which would cover an area of 1 acre to a depth of 1 foot; equal to 43,500 cubic feet or 325,851 gallons.

affected environment: Existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action. Also, the chapter in an environmental impact statement describing current environmental conditions.

air quality: Measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

alternatives: Courses of action which may meet the objectives of a proposal at varying levels of accomplishment. Alternatives include no action, the most likely future conditions without the project or action.

archaic: In American archeology, a cultural stage following the earliest known human occupation in the New World (about 5,500 B.C. to A.D. 100). This stage was characterized by a hunting and gathering lifestyle and seasonal movement to take advantage of a variety of resources.

archeology: Study of human cultures through the recovery and analysis of their material relics.

artifact: A human-made object.

B

blow sand: A natural sand process where strong winds lift the sand and transports it.

C

candidate species: Plant or animal species that are not yet officially listed but which are undergoing a status review as published in the *Federal Register* by the U.S. Fish and Wildlife Service, are candidates for possible addition to the list of threatened and endangered species.

climate: Average conditions of the weather over a number of years.

cooperative agreement: Formal document that states the obligations of Reclamation to one or more other parties. A cooperative agreement provides the authority for Reclamation to issue funding to the other party(ies) listed in the agreement. The legal instrument used to reflect a relationship between the Federal Government and a State, local, or tribal government or other recipient whenever the principal purpose of the relationship is the transfer of money, property, services, or anything of value to a recipient to accomplish a public purpose of support or stimulation authorized by Federal law; and substantial involvement is anticipated between the Federal Government, and the State, local, or tribal government, or other recipient during performance of the contemplated activity.

corridor: Narrow strip of land reserved for location of transmission lines, pipelines, and service roads.

Council on Environmental Quality (CEQ): Establishes regulations for implementing the procedural provisions of the National Environmental Policy Act.

Crime Witness Protection Program: A program originally created by the Bonneville Power Administration to protect transmission systems, substations, facilities, property, and personnel. The Bonneville Power Administration administers Reclamation's program through an agreement signed in October 1998. The program offers cash awards up to $1,000 for information leading to the arrest and conviction of persons committing crimes. Signs posted at facilities direct informants to call a toll-free number to report suspicious or criminal activity.

critical habitat: Defined in section 3(5)(A) of the Endangered Species Act of 1973, as amended as:

> (1) The specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical and biological features essential to the conservation of the listed species and which may require special management considerations for protection; and
>
> (2) Specific areas outside the geographical area occupied by a species at the time it is listed upon a determination by the Secretary of the Interior that such areas are essential for the conservation of the species. These areas have been legally designated via *Federal Register* notices.

cubic foot per second (cfs): As a rate of streamflow, a cubic foot of water passing a reference section in 1 second of time; 1 cfs = 2 acre-feet per day; 651,702 gallons per day. A measure of a moving volume of water (1 cfs = 0.0283 cubic meter per second);

cultural resource(s): Any building, site, district, structure, or object significant in history, architecture, archeology, culture, or science.

cumulative impact: The incremental additive impacts of the proposed project and other projects in the area of influence. Cumulative impacts are reasonably foreseeable in the future.

D

desired future condition: The future condition of the study area that results from achieving the goals and objectives identified in the Resource Management Plan.

E

economic benefits: Economic benefits attempt to measure changes in societal or national welfare based on net value concepts, including consumer surplus and producer profitability.

ecosystem: Complex system composed of a community of animals and plants as well as the chemical and physical environment.

employment: Total of hourly wage, salary, and self-employed jobs (part-time and full-time), measured in terms of jobs, not full-time equivalents

endangered species: A species or subspecies whose survival is in danger of extinction throughout all or a significant portion of its range.

environment: All biological, chemical, social, and physical factors to which organisms are exposed. The surroundings that affect the growth and development of an organism.

environmental analysis: Systematic process for consideration of environment factors in land management actions.

environmental assessment (EA): A National Environmental Policy Act compliance document used to determine if an action would have a significant effect on the human environment. If not, a finding of no significant impact is written. If so, an environmental impact statement is written.

environmental impact statement (EIS): A NEPA compliance document used to evaluate a range of alternatives when solving the problem would have a significant effect on the human environment. The EIS is more than a document; it is a formal analysis process which mandates public comment periods. An EIS covers purpose and need, alternatives, existing conditions, environmental consequences, and consultation and coordination.

environmental justice: Executive Order 12898 defines Federal agency responsibilities with respect to environmental justice. Federal agencies are expected to identify and address disproportionate high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

erosion: Refers to soil and the wearing away of the land surface by water, wind, ice, or other physical processes.

Executive order: A written directive of the President of the United States.

F

facilities: Manmade structures, such as dams, spillways, and outlet works.

finding of no significant impact (FONSI): A National Environmental Policy Act compliance document which affirms that an environmental assessment found that alternatives were evaluated and a proposed action would have no significant impact on the human environment.

G

geographic information system: A digital geographic database used to analyze and store data.

geology: The science that deals with the physical history of the earth, the rocks of which it is comprised, and the physical changes which the earth has undergone or is undergoing.

goal: A brief statement describing the end result of implementing a management action or series of actions. A goal can also be considered a desired future condition which the Bureau of Reclamation wishes to achieve within the management area.

groundwater: Generally, all subsurface water as distinct from surface water; specifically, that part of the subsurface water in the saturated zone where the water is under pressure greater than atmospheric.

groundwater recharge: The flow to ground water storage from precipitation, infiltration from streams, and other sources of water.

H

habitat: The area or type of environment in which a plant or animal normally lives or occurs.

historic properties: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the *National Register of Historic Places* maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe and that meet the *National Register of Historic Places* criteria.

I

incidental take: The taking of an endangered species or a threatened species incidental to the agency action.

Indian tribe: An Indian tribe, band, nation, or other organized group or community, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

invertebrate: An animal lacking a spinal column.

irrigation district: A cooperative, self-governing public corporation set up as a subdivision of the State government, with definite geographic boundaries, organized and having taxing power to obtain and distribute water for irrigation of lands within the district; created under the authority of a State legislature with the consent of a designated fraction of the landowners or citizens.

L

life history: Life cycles through which organisms pass, with emphasis on reproduction and survival mechanisms.

M

mitigation (measures): Action taken to avoid, reduce the severity of, or eliminate an adverse impact. Mitigation can include one or more of the following:

(1) Avoiding impacts

(2) Minimizing impacts by limiting the degree or magnitude of an action

(3) Rectifying impacts by restoration, rehabilitation, or repair of the affected environment

(4) Reducing or eliminating impacts over time

(5) Compensating for the impact by replacing or providing substitute resources or environments to offset the loss

N

National Register of Historic Places (*Register*): A federally maintained register of districts, sites, buildings, structures, architecture, archeology, and culture.

No Action Alternative: The most likely future conditions without the project or action.

O

objective: A brief statement or series of statements that briefly describe an action that will achieve a specific goal identified in a Resource Management Plan.

open space: A parcel of land that has public value because the land offers important opportunities for recreation. Open space may also have value as a visual amenity to the landscape or backdrop of an outdoor natural setting.

P

passive recreation: Recreational opportunities that occur in a natural setting that require minimal development or facilities. The importance of the environment or setting for the activities is greater than in developed recreation settings.

perchlorate: Perchlorate is a naturally occurring and manmade chemical. Most of the perchlorate manufactured in the United States is used as the primary ingredient of solid rocket propellant. In recent years, there has been increasing interest in perchlorate levels in soil, ground water, drinking water, and irrigation water. At high doses, perchlorate can interfere with iodide uptake into the thyroid gland.

perennial: Refers to plants that have a life cycle that lasts for more than 2 years.

PM_{10}: Refers to small suspended particulate matter, 10 microns or less in diameter, which can enter the lungs. These small particles can be directly emitted into the atmosphere as a byproduct of fuel combustion; through abrasion, such as wear on tires or brake linings; or through wind erosion of soils. PM_{10} emissions can also be formed in the atmosphere through chemical reactions.

precipitation: Liquid or solid water particles that fall from the atmosphere and reach the Earth's surface. It includes drizzle, rain, snow, snow pellets, snow grains, ice crystals, ice pellets, and hail.

predation: The consumption of one organism (the prey) by another (predator).

prime farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of Agriculture.

public involvement: Process of obtaining citizen input into each stage of development of planning documents. Required as a major input into any environmental impact statement.

Q

qualitative: Having to do with quality or qualities. Descriptive of kind, type, or direction as opposed to size, magnitude, or degree.

quantitative: Having to do with quantity, capable of being measured. Descriptive of size, magnitude, or degree.

S

sacred site: See Executive Order 13007. Any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.

saline: Bodies of water with excessive or high salt concentrations.

salinity: A measure of the quantity of the total dissolved solids or salts in water.

significance: Council of Environmental Quality Guidance, 43 CFR section 1508.27, explains that significantly requires considerations of the context of the action (society as a whole, the affected region, affected interests, and locality) and intensity (the severity of impact).

site: In archeology, any location of past human activity.

spawn: To lay eggs, especially in reference to fish.

special status species: Rare animal and plant species that have been identified by Federal or State agencies as needing protective measures. Special status species as defined and used in this document, include the following:

- Plant and animal species listed as Federal threatened or endangered under provisions of the Endangered Species Act of 1973, as amended.
- Plant and animal species proposed for listing as Federal threatened or endangered under the ESA with the proposed listing published in the *Federal Register*.
- Species designated as sensitive or species of concern by State and/or Federal management

T

threatened species: Any species which could become endangered in the near future.

topographic: Measuring and displaying on maps of physical surface features such as rivers, mountains, or roads.

traditional cultural property: A site or resource that is eligible for inclusion in the *National Register of Historic Places* because of its association with cultural practices or beliefs of a living community.

V

vertebrate: An animal having a segmented backbone or vertebral column. Includes mammals, birds, fish, amphibians, and reptiles.

W

water table: The depth below which the ground is saturated with water.

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